

**Summary of Stakeholder Comments in Response to the Final Draft Version 6.0 ENERGY STAR Displays Specification (Distributed June 14, 2012)**

Topic No.	Topic	Comment Summary	Response
1	ABC - Adders	<p>The Eligibility Criteria includes an Equation 5 which determines a 10% On Mode Power Allowance for products with ABC enabled by default. In order to qualify for this power allowance, the measured On Mode power reduction must be at least 20 percent, and the current benefit for ABC enabled products of providing an additional 10% On Mode power allowance does not account for greater potential savings generated by the ABC feature in display products.</p>	<p>When developing the proposed approach to incentivizing ABC, EPA considered various power reduction requirements and the corresponding adder values, reaching the 20% value based on existing data. Therefore, EPA proposes to keep the 20% power reduction requirement.</p> <p>In the future, EPA will continue to analyze the prevalence of ABC in display products and seek additional data to quantify the potential energy savings when ABC is enabled by default.</p>
2	Definitions - ABC	<p>The definition of On Mode Power for Products with ABC enabled by default does not seem to be fully-clarified yet. Could we understand that <math>P_{on} = 0.2 \times P_{10} + 0.8 \times P_{300}</math> (shown in the draft 3)?</p>	<p>At this time, EPA has adopted a simple pass/fail test to qualify using ABC and to determine if any savings come from the use of ABC, rather than adopt weightings of power consumption at specified room illumination points. EPA will continue to evaluate the effectiveness of this approach under Version 6.0 and will consider any necessary modifications for a future revision.</p>
3	Definitions - Enhanced Performance Displays	<p>The stakeholder has concerns about the draft 3 requirement that all three features/functionality apply in order for a display to be eligible for the Enhanced Performance Display classification, and recommends that only two of the three characteristics be required for a display to be eligible for the Enhanced Performance Display adder.</p> <p>CR &gt; 60:1 at a 85-degree horizontal viewing angle: existing test equipment is not accurate at these wide viewing angles.</p> <p>Resolution &gt; 2.3MPix: This limits monitors to hi-res 30", 27" and 16*10 24" (1920*1200 resolution); with 16*10 gradually disappearing, the extra allowance will be limited to the 2 Performance monitors the stakeholder has; lower the figure to 2.05MPix (full HD resolution), and add a few other criteria.</p> <p>Enhanced Performance Displays should not just be about better panel specs, which do not necessarily contribute to higher power. A higher power allowance for displays with better features, like wireless, Ethernet, built-in processors, or powered USB ports, is needed. Maybe the allowance should be for "full featured monitors," rather than "enhanced performance."</p>	<p>EPA received feedback from stakeholders in its initial exploration of how viewing angle is measured that it is feasible to measure contrast ratio at an 85 degree angle.</p> <p>Based on discussions with stakeholders and market analysis, EPA believes that a display must meet the three criteria, including that of resolution of 2.3 megapixels or greater, for an enhanced performance display to be accurately distinguished from a conventional computer monitor.</p> <p>EPA is currently addressing additional features and functionality across all types of displays, such as network connectivity, through additional power allowances in the Version 6.0 specification, as combinations of such features may not be limited to enhanced performance displays. EPA will continue to monitor the displays market to understand the extent to which products with such features are distinguishable from conventional products.</p>
4	Definitions - Pixel Density	<p>Pixel density limit of 5,000 pixels per square inch for signage displays could disqualify future products. There is industry interest in 4K standards at both 3,840 x 2,160 (QFHD) and 4,096 x 2,160 resolutions. At the recent NAB tradeshow, there were numerous cameras, displays, and projectors shown that support these resolutions. Today, 4K has a significant installation base in the US movie theater market. But even without the jump to 4K, there are common resolutions of WQHD, WQXGA, QUXGA that could lead to efficient products that would not be able to meet ENERGY STAR qualifications, simply due to superior resolution.</p> <p>The stakeholder recommends that the 5,000 pixel limit for signage displays be limited to those greater than or equal to 12 inches or less than 30 inches, and that signage displays greater than or equal to 30 inches should be allowed greater pixel density.</p> <p>Additionally, signage displays that have sufficiently wide viewing angles, high native resolution, and wide color gamut should also be categorized as Enhanced-Performance Displays and be allowed the Pep adder.</p>	<p>EPA is interested in the emergence of signage displays with higher resolutions and will evaluate how to address them in a future revision to the specification, once more information on these products, including their features, functionality and energy performance, becomes available.</p>

5	<b>Effective Date - Extension</b>	Due to delays in getting the Ver. 6.0 Display program requirements finalized, we request that EPA continue the convention of providing manufacturers with at least nine months lead time from the date the spec. is finalized. If the spec. is finalized and published in August 2012, this suggests that the Ver. 6.0 requirements should not become effective until May 2013. If July 2012, then April 2013 at earliest.	EPA shares its partners' desire for a smooth transition from one ENERGY STAR specification version to the next, such that ENERGY STAR labeled products meet the latest requirements in effect upon their date of manufacture and that partners have time to transition their collateral material. As such, the specification will take effect in May 2013, nine months following the the release of the final specification.
6	<b>Enhanced Performance Displays - Signage</b>	EPA should allow signage displays to qualify as Enhanced-Performance Displays. EPA should also provide an allowance for white board functionality in the next version.	EPA is interested in the emergence of signage displays with higher resolutions and will evaluate how to address them in a future revision to the specification, once more information on these products, including their features, functionality and energy performance, becomes available.  EPA is interested in learning more about the power consumption of displays with white board functionality that meet the definition of displays and can be tested using the Displays test method. Once EPA has more information on such products, EPA intends to explore how to address them in a future version of the specification.
7	<b>Non-Energy Requirements - User Interface</b>	Has the IEEE P1621 standard been finalized? We are not familiar with the IEEE P1621 standard. We are reluctant to support or accept requirements being included in the ENERGY STAR specifications if the standard is not finalized. Questions / Input: - Has anyone reviewed the IEEE P1621 standard, and do we have a set of rationale for not adopting it? - Checked the web a bit; seems to this still be in "draft" stage, since 2003 or so... - But for example, we do not follow the LED power button requirement: For power indicators use Green for on, Amber for sleep, and show no color when the device is off. Red should be reserved for warnings, alarms, or errors. Use flashing only for transitions or non-power meanings.	The topic of power control user interfaces arose in the late 1990s in ENERGY STAR discussions and in related research. Research was conducted by LBNL in 2000-2002 on this issue (for more information, see: <a href="http://energy.lbl.gov/ea/controls/publications/pubsindex.html">http://energy.lbl.gov/ea/controls/publications/pubsindex.html</a> ). In 2003 and 2004, IEEE conducted a standards process to create IEEE 1621 with the participation of ENERGY STAR and many partner companies. The standard won final IEEE approval in 2004 and was reaffirmed in 2009. ENERGY STAR references IEEE 1621 in several specifications, always as encouraged but voluntary. It is also referenced by other specifications and standards.  The premise of 1621 is that if individual elements of the power control user interface are standard, then people will understand the power state and controls for it of electronic devices they interact with in any context. This can improve usability and lead to more use of power-saving modes.
8	<b>Off Mode - Adders</b>	It is possible to add 0.5W to the "sleep mode" maximum, if a USB 2.0 port (or 0.7 W on a USB 3.0 port) is connected to the PC for sleep mode test. But it is not possible to take the extra power if the USB port is just available, and not in use for example the standard USB ports provided for possible connection to a kbd or mouse or disk-on-key.  For USB, the ports may be required to be awake to support waking-up a PC upon a kbd key-stroke or mouse movement, either in "Sleep" or in "OFF" modes... but these should consume minimal power as these operations are not exercised during testing. During testing the USB ports remain unplugged.  If I am mistaken in the interpretation of the requirement, then we would need the same increase in allowance for the "OFF" limit.	If a device is able to wake, then the corresponding mode should be classified as Sleep Mode, rather than Off Mode. It is possible for a device to have multiple Sleep Modes.
9	<b>Partnership Agreement - Electronic Labeling Option</b>	The "Electronic Labeling Option" seems to have been changed from past requirements. The requirement of minimum area size means different physical OSD sizes, so we cannot have the same pixel count for all monitors anymore and this is problematic from an implementation standpoint. Please confirm no changes will be required for the ver. 6.0 Display spec.	The requirement for the Partner Commitment under Version 6.0 is the same as in the V5.1 specification, and does not require any particular pixel count (or density), but instead sets a minimum pixel count. The requirement to "be at least 10% of the screen by area... and... legible," does not require adjustments to account for higher resolution.
10	<b>Scope - Excluded Products</b>	We understand that EPA has limited information about the power consumption of larger screen sizes, but this should not disqualify all displays 61 inches and above. New specifications should anticipate, rather than lag, the market.  Larger screens typically require more, rather than less, power than smaller screens, which is seen in practice within most any manufacturer's multi-sized product family groups. This stakeholder recommends that EPA add a power cap at the point at which EPA has limited additional data.	EPA appreciates the stakeholder feedback on applying a power cap instead of a size cap. Given the lack of data received on which to base proposed power limits for products larger than 61", EPA proposes to keep the 61" size cap for Version 6.0. However, EPA will revisit the inclusion of larger displays in a future version once it has more data.

11	<b>Scope - Touch Screens</b>	The stakeholder is encouraged that EPA will consider the additional power used for touch screen displays and will be pleased to provide the related information to EPA.	EPA appreciates the stakeholder feedback indicating a willingness to provide more information. EPA continues to be interested in the power associated with touch screen functionality. Once EPA has more information, EPA anticipates addressing displays with touch screen functionality in a future version.
12	<b>Sleep Mode - Adders</b>	<p>The Standby Wireless allowance specifies "Wi-Fi" as an "Included Type". Some wireless implementation doesn't specifically utilize Wi-Fi, but the purpose is the same—wireless connectivity. Examples are UWB and Widi. Specifying only "Wi-Fi" in the "Included Types" will prevent displays with UWB or Widi from qualifying even though their functionalities are similar.</p> <p>Kindly include other wireless technologies, UWB and Widi, in the "Included Types," to provide Displays with these technologies even playing field.</p>	Currently, EPA does not have enough information on such types of wireless connectivity to determine their impacts on power consumption. EPA will consider their impacts in a future revision should data become available. Products with these features are, however, still within the scope of products in this specification and are thus eligible to be ENERGY STAR qualified if they meet the power limits.
13	<b>Sleep Mode - Adders</b>	The stakeholder recommends that EPA provide examples on how to determine the "Value of the Limits That Apply" (for at least the Display On Mode and Sleep Mode), and how to record the test results and compare them with the specification limits "Value of the Limits That Apply," to determine compliance.	EPA has provided examples of how to determine the Value of the Limits that Apply in the Final Version 6.0 specification.
14	<b>Sleep Mode - Adders</b>	<p>In general, when using USB 2.x, energy consumption is always up to 0.8~1.0W even the monitor entering into Sleep mode. Therefore, it would be impossible for compliance that the spec only add 0.5W for this extra connection.</p> <p>The stakeholder suggests if the add up power consumption of sleep mode for USB 2.x could be reconsidered.</p>	EPA based the 0.5 W allowance for using USB 2.x on available data, and therefore retains it in the Final Version 6.0 specification.
15	<b>Sleep Mode - Occupancy Sensor</b>	We would like to confirm the reason and the background of 0.5W (Table 4) for occupancy sensor in Sleep Mode. For example, could you tell us more details about comments from stakeholders?	During the specification revision process, EPA received data and feedback from manufacturers regarding the additional power consumption that could best be attributed to the occupancy sensor in a display. EPA will continue to monitor the prevalence of occupancy sensors in new products, the associated power consumption, and any potential power savings due to this feature.
16	<b>Sleep Mode - Power Management</b>	With respect to the new requirements for Displays to automatically enter Sleep Mode when disconnected from the host PC (in addition to being capable of being power managed by the host PC), this is appropriate for displays with scalars, but not for displays without scalars, such as those with direct-drive or USB, since the power management functions reside on the scaler.	According to stakeholder feedback on the power management behavior of monitors when they are disconnected from a computer without being turned off, most monitors on the market today enter Sleep Mode after the connection to a host is discontinued. As such, EPA proposes to require this power management feature for all ENERGY STAR qualified computer monitors.