ENERGY STAR V7.0 Displays Final Draft Specification and Final Draft Test Method - Comments from the European Commission

This document includes comments from the European Commission on the final draft EN-ERGY STAR v7.0 specification for displays and the corresponding final draft test method.

Overall Comments

We made a number of comments to the previous draft of the ENERGY STAR v7.0 specification, most of which were addressed in the final draft. Within this document we repeat the comments that we made previously for those aspects, which were not addressed in the final draft and for which we think still need to be addressed. We have also added additional comments including new comments on the final draft test procedure.

Specification Document: General Comments

<u>Line 208 - Enhanced Performance Display Definition</u>

Stakeholders previously commented that high brightness and colour gamut conformity across a display is a clear indication of a display being of enhanced performance. As such we request that two additional mandatory technical features are added to the Enhanced Performance Display definition to ensure that only displays offering truly enhanced performance are able to take advantage of the extra allowances:

- a brightness and colour uniformity of >90% across the image;
- colour and brightness stability at the delivered specified performance across the specific working temperature range and nominal working life

<u>Line 212 - Enhanced Performance Display Allowances</u>

We have previously commented on the levels of extra allowance for enhanced performance displays and appreciate that some changes have been made after the expansion of the dataset. On examining the background Excel file we noted that the allowance for the EPDs meeting the "Color Gamut support is 32.9% of CIE LUV or greater" criterion (i.e. lower performance EPDs) can be reduced to 0% and still maintain a pass rate of 25%. As such we do not see a justification for providing additional allowances for this type of EPD and so the additional allowance of 15% should be removed. We recognise that this would ef-

fectively mean that the lower performance EPDs would be classed as normal monitors but this is justified by the data.

We accept earlier US EPA comments that EPD products currently represent a relatively small subset of displays but also recognise that the specifications for the higher performance EPDs (i.e. the EPDs meeting the "Color Gamut support is 38.4% of CIE LUV or greater" criterion) have been set at a level where 25% of products pass and that there are less of these higher performance product types in the dataset. We think that the lower performance EPDs should have the same pass rate as the higher performance EPDs. To achieve the same pass rate it is necessary to remove the additional allowance for the lower performance EPDs.

The US EPA also state in the final draft specification (lines 246 to 248) that after a substantial review of products in the marketplace, including those not qualified to the ENER-GY STAR, the US EPA considers that the EPD dataset is reflective of the majority of the EPD market. As such it does not appear suitable to set allowances, which can likely be met by more than 25% of products in the marketplace. It is also our understanding that the technology used in the lower performance EPDs is widely used in televisions and so a transition across to monitors in a short amount of time is possible.

We would also like to point out that the lower performance EPDs will likely be considered "normal monitors" under future EU energy efficiency initiatives (i.e. EU Ecodesign Regulation and Energy Labelling).

In summary, we are supportive of the additional allowance for the higher performance EPD products, as listed in the final draft specification document, but are not supportive of the additional allowance for the lower specification EPDs.

<u>Line 346 – Sleep Mode Requirements for Signage Displays</u>

We previously noted that we were concerned that the 1W allowance for networked sleep mode in signage products (0.5W base plus the 0.5W Full Network Connectivity Allowance) may be too stringent. We understood that it is technical feasible for products to perform at these power demands but that manufacturers have been designing products to meet higher allowances in the ENERGY STAR specification for televisions and the EU Ecodesign Regulation on Networked Standby. We stated that we would be supportive of a relaxed requirement, when the requirement takes effect, reflecting the manufacturers' position but also suggested that a more ambitious Tier II requirement taking effect 1 year later at the current levels was also included.

We note that the full network connectivity sleep mode allowance for signage displays has been relaxed to 3W and that a comment has been added that this will be reduced in future specifications. We would like to reiterate that there is an opportunity to add in a second lower requirement to take effect one year later. This would give manufacturers adequate time to alter products.

<u>Line 373 - Off Mode Requirements for all Displays</u>

The specifications states that products do not need to have an Off Mode to be eligible for certification. We suggest that "monitors" are required to have an off mode or another power mode that can meet the off mode power requirement of 0.5W.

Specification Document: Clarification comments

We have some comments aimed at clarifying the text of the specification:

<u>Line 34 - Sleep Mode definition</u>

We suggest that the text on activation is slightly modified to include the touch functionality (addition in bold): "Sleep Mode may serve the following functions: facilitate the activation of On Mode via remote switch, **display touch functionality,** internal sensor, or timer; provide information or status displays including clocks; support sensor-based functions; or maintain a network presence."

Line 93 and 94 - additional input options are not considered Plug-in Modules

The statement that "modules providing additional input options are not considered Plug-in Modules" conflicts with the "Process touch signals" option on line 93. It is suggested that the text in line 94 is changed to:

"Note: Modules providing any other additional input options are not considered Plug-in Modules for the purposes of this specification".

Line 128 and 129 - Computers

The sentence "Products that are covered under other ENERGY STAR product specifications are not eligible for certification under this specification including Televisions and Computers (Thin Clients, Slates/Tablets, Portable All-in-one Computers)" does not include mention of integrated desktop computers. These should either be added to the list of excluded computer types as below or the individual types of computers should be removed:

"Products that are covered under other ENERGY STAR product specifications are not eligible for certification under this specification including Televisions and Computers (Thin Clients, Slates/Tablets, Portable All-in-one Computers, integrated desktop computers)".

Specification Document: Editorial Comments

We also have a number of editorial comments.

Line 44 and 46 - "Display" or "display"

The word "display" is capitalised mid-sentence in some areas of the document but not capitalised in other areas. It is suggested that a standardised approach is used for this word, which we suggest to be not capitalised.

Line 319 - Pon_max

It is stated that PON_MAX is calculated as per "Equation 7". We believe that this should be "Equation 6"

Line 328 - Pon_MAX

As per all other references to individual parts of formula it may be useful to reference which formula PON_MAX is calculated within. That is, the working could be:

"• Pon_max is the Maximum On Mode Power requirement in watts, per Equation 6"

Line 332- Pon_MAX

The line reads "Maximum Sleep Mode Power Requirement (P_{ON_MAX}) and". We believe that this should be "Maximum Sleep Mode Power Requirement ($P_{SLEEPMAX}$) and"

<u>Line 392 - Power Consumption</u>

The term "power consumption" is not technically correct and so should be changed to "power demand".

<u>Line 407 – Version 6.0</u>

A reference is made to "Version 6.0". We believe that this should be "Version 7.0".

Test Method Document: Editorial Comments

We also have a number of editorial comments on the test procedure document.

Line 14, 401, 412, 416 - IEC 62301 reference

We note that reference is made to "International Electrotechnical Commission (IEC) 62301 Ed.2.0, "Measurement of Household Appliance Standby Power,"". The IEC standard is called, "IEC 62301:2011 Household electrical appliances – Measurement of standby power" and so the reference should be changed. In any case, reference to the IEC specification should be included as published by IEC to avoid any unintended confusion (e.g. IEC "Number": "Date").

Line 27 - Universal Serial (USB) 3.0

Reference is made to "Universal Serial Bus (USB) 3.0" which we believe should be updated to "Universal Serial Bus (USB) 3.1".

Line 112, 276, 277, 306, 308, 330, 332, 356, 379 - IEC 62087 reference

We note that the IEC 62087 standard was updated in 2015 and so reference should be made to this updated standard if appropriate: "IEC 62087-3:2015 Audio, video, and related equipment – Determination of power consumption – Part 3: Television sets". In any case, reference to the IEC specification should be included as published by IEC to avoid any unintended confusion (e.g. IEC "Number": "Date")

Line 254 - Battery Operated Products

The ENERGY STAR v7.0 draft specification document states (lines 133 to 135) that "Displays with integrated or replaceable batteries designed to support primary operation without ac mains or external dc power, or device mobility (e.g., electronic readers, battery powered digital picture frames);" are excluded from the scope of the specification. Therefore, lines 254 to 266 in the test methodology document could be removed.

Line 276, 277 - IEC 62087 Ed. 3.0

The IEC specification has been updated and so it should be reviewed whether the reference in the test procedure document also needs to be updated. In any case, reference to the IEC specification should be included as published by IEC to avoid any unintended confusion (e.g. IEC "Number": "Date").

Line 405 - Version 5.2 ENERGY STAR Computer specification

Reference is made to the version 5.2 ENERGY STAR Computer specification. This could be updated to the "version 6.1 ENERGY STAR Computer specification".

Line 419 - Off mode

The test procedure states that "D) Off Mode power for products without a physical power switch shall be measured with the UUT connected to the Host Machine, with the Host Ma-

chine in the power Off Mode". The final draft ENERGY STAR v7.0 specification defines "Off mode" as:

"3) Off Mode: The mode where the display is connected to a power source, produces no visual information, and cannot be switched into any other mode with the remote control unit, an internal signal, or an external signal.

Note: The display may only exit this mode by direct user actuation of an integrated power switch or control. Some products may not have an Off Mode".

As such, there is a disconnect between these two statements since a product could not wake from "off mode" as defined within the draft final specification without direct user actuation an integrated power switch or control.

Line 420 - Off mode

The test procedure includes the text "with the Host Machine in **the power Off Mode**". If this whole sentence is retained after review of the comment above it could be changed to, "with the Host Machine in Off Mode. For a computer Host Machine, Off Mode is defined in the Version 6.1 ENERGY STAR Computers specification".