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Attention: RJ Meyers, EPA, at [Meyers.Robert@epa.gov](mailto:Meyers.Robert@epa.gov), and John Clinger, ICF International, at [John.Clinger@icfi.com](mailto:John.Clinger@icfi.com)

Re: ENERGY STAR Computer Specification – Version 6.1 Specification Letter

Thank you for the opportunity to submit comments in response to the EPA's ENERGY STAR Computer Specification framework proposal letter, and associated webinar. We look forward to on-going collaboration. Our comments are as follows:

### **DEFINITIONS: Industry proposed definition of Portable/Mobile AIO and 2 in 1 computers**

The following proposed definitions were submitted to EPA on November 5, 2013. These are being provided in continuation of discussions from EPA's ENERGY STAR Version 6.1 webinar.

- Desktop Computer: A computer whose main unit is designed to be located in a permanent location, often on a desk or on the floor. Desktop computers are not designed for portability and are designed for use with an external display, keyboard, and mouse. Desktop computers are intended for a broad range of home and office applications.
  - (1) Integrated Desktop Computer: A Desktop Computer in which the computing hardware and display are integrated into a single housing, and which is either always connected to ac mains power through a single cable, or operates with a battery without a direct connection to ac main power source, with an intent to provide flexibility and limited portability to the end user to select a preferred location for use. Integrated Desktop Computers come in one of two possible forms: (1) a system where the display and computer are physically combined into a single unit (with either fixed or portable/mobile configurations); or (2) a system packaged as a single system where the display is separate but is connected to the main chassis by a dc power cord and both the computer and display are powered from a single power supply. As a subset of Desktop Computers, Integrated Desktop Computers are typically designed to provide similar functionality as Desktop systems.
- Notebook Computer: A computer designed specifically for portability and to be operated for extended periods of time both with and without a direct connection to an ac mains power source. Notebook Computers include an Integrated Display, a physical, mechanical keyboard (using physical, moveable keys), and pointing device.

Note: Notebook computers are typically designed to provide similar functionality to Desktops, including operation of software similar in functionality as that used in Desktops. For purposes of this specification, Notebook Computers include models with touch--sensitive screens and, detachable and convertible configurations with possible detachable keyboards and display panel that are sold as an integrated unit.

**Webinar Comment:** EPA proposed definition of 2 in 1 computers requires physical keyboard base to contain processing capability. Industry suggests to remove this requirement and provide manufacturer flexibility to have processing capability either in the lid, keyboard base or both lid & keyboard base. 2 in 1 definition should focus on having a keyboard engineered for an integrated 2 in 1 design (detachable or fixed). See above Industry proposed definition.

### Proposed Tablet/Slate Definition (New):

- **Tablet/Slate terminology:** ITI regards tablets and slates device category to mean the same, and prefer 'Tablet/Slate' terminology be combined in the ENERGY STAR Specification
- **Tablet/Slate Computing Device Definition:** A computer is a Tablet/Slate Computing Device if it has all of the following characteristics:  
~~Includes an integrated display with a diagonal size greater than 6.5 inches~~
  1. Either lacking an integrated, physical keyboard or includes a detachable physical keyboard (factory or after-market)
  2. Includes and primarily relies on touchscreen input; (with optional keyboard)
  3. Includes and primarily relies on a wireless network connection (e.g., Wi-Fi, 3G, etc.); and
  4. Includes and is primarily powered by an internal battery (with connection to the mains for battery charging, not primary powering of the device).

- **Comments:** Our earlier position was that these should be '*Marketed as a Tablet/Slate computing device*'. We are now debating if this requirement should be part of the definition. Industry proposes to remove the display size restriction as part of slate/tablet definition. Instead the focus should be to outline devices that are not in scope (see below)

#### **Definition Questions:**

1. Are there other sources that EPA should review for input on the current list of definitions:
  - **Comments:** Computing form factors continue to evolve driven by market needs. For the purpose of ENERGY STAR V6.1, current proposed definitions are adequate. Definition would be revisited in the future ENERGY STAR V7.0
2. Is the current Slate/Tablet definition comprehensive enough? Is it in sync with the market?
  - **Comments:** Current proposed definitions on Slates/Tablets are in line with products in the market. Definition would be revisited in the future ENERGY STAR V7.0
3. Are there suggestions for defining hardware differences between Notebooks and Slate/Tablets for requirement purposes?
  - **Comments:** From hardware and OS perspective slates/tablets are no longer limited to single architecture or OS; these include ARM and x86 based processors and Android, Windows, etc. operating systems. There is performance, usage and power management differences between Notebooks and slates/tablets, but the same rules don't always apply. Hard to articulate differences without a comprehensive study (possible topic for the future ENERGY STAR V7.0). For the purpose of ENERGY STAR V6.1, the definitions proposed above should suffice.

#### **Scope Questions:**

1. Are there concerns with removing devices with a diagonal screen size of less than 6.5 inches from scope in Version 6.1

- **Comments:** As stated earlier, Industry proposes to remove the display size restriction as part of slate/tablet definition. Instead the focus should be to outline devices that are not in scope (see below)
2. Are there existing or planned products that would fall under the Slate/Tablet scope inclusion, but also under the non-PC based point-of-sale products scope exclusion?
- **Comments:** This could be a concern. Industry suggestion is that POS devices that do not meet the definition of slates/tablets could stay out of scope along with currently defined POS exclusion
  - **Comments on Excluded Products (section 2.2):** industry proposes to define Smart/Mobile phones to ensure clear separation from slates/tablets definition.
    - Mobile Phones/Smart Phones: These devices<sup>1</sup> have out-of-the-box cellular voice telephony, capable of connecting to a cellular network for voice communication through a service provider voice plan. Mobile phones that are also capable of connecting to a data network for access to the internet are sometimes called “smart phones” or “phablets” and fall under this mobile phone definition.

*Notes: Slates/Tablets may support cellular voice connectivity as a secondary feature. These devices may connect to a cellular network (e.g., connect via WiFi and side loaded applications such as Skype for voice) but are not primarily designed for voice communications.*

#### **Testing:**

1. We are still gathering data on default display luminance for testing (200 nits vs. 150 nits)
2. Duty Cycles: While most slates/tablets are shipped in always connected state, with short and long idle modes but no discrete sleep enabled as-shipped, there are some cases of products that meet the definition of slates/tablets but have the power modes found in a typical notebook. We would want flexibility for such products to be tested using notebook mode weightings as specified in Energy Star V6.0. We will provide further update in response to Draft 1.

#### **Testing Questions:**

1. DOE Assessment: Use notebook test methods with necessary edits to test Two-in-One and Slate/tablet products
2. Are there significant technical limitations that prevent slates/tab from being successfully tested using the TEC metric for Notebooks found in Version 6.0?
  - **Comments:** Slate/Tablets do not have some of the power modes that are used for Notebooks testing. Most slates/tablets are shipped in always connected state with short and long idle modes but no discrete sleep enabled as-shipped.

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<sup>1</sup> “IDC’s Worldwide Mobile Phone Tracker Taxonomy, 2013”. Published May 2013. “By IDC’s definition, each mobile phone must have an air interface associated with it. IDC classifies each phone at its highest possible air interface, so if a phone is WCDMA ready and EDGE and GPRS capable, for example, the device is classified as a WCDMA device as that is the fastest or highest air interface. ....”

Industry Proposal on mode weightings based on NPD Report<sup>2</sup> and display luminance for testing:

- Long idle:
    - 90% (NPD study);
  - Short idle:
    - 10% (NPD study)
  - Display luminance for testing: TBD – see comment above
3. Are there devices proposed for scope inclusion that are not good for the existing test methods
4. **Comments:** Once agreed on slates/tablets scope, power modes, mode weightings, and display luminance for testing, then slates/tablets in scope could be tested with some changes to notebook test methods (see Test method comments under general comments below)
5. **Efficiency Criteria for slates/tablets:**
- Two-in-one computers and Slates/Tablets which contain notebooks level processing capability: Follow appropriate notebook category in Table 6 of the Version 6.0 Computers Specifications, based on the installed hardware:
  - Slates/Tablets which use hardware not typically associated with Notebooks (e.g. ARM processors) would fall under the '0' category in Table 6 mentioned above
    - **Comments:**
      - Notebook processing capability: There is no easy way to define notebook processing capability since the architecture, HW, and OS is no longer a differentiator between standard notebooks, 2 in 1, and slates/tablets.
      - There is clearly performance, usage and power management differences between the two form factors, but the same rules don't always apply. (example: computer that meets the definition of slate/tablet and marketed as a tablet could have the processing capability of two-in-one)
      - It is hard to articulate differences without a comprehensive study (possible topic for the future ENERGY STAR V7.0)
      - As mentioned under definition discussion, from hardware and OS perspective slates/tablets are no longer limited to single architecture or OS; these include ARM and x86 based processors and Android, Windows, etc. operating systems.
    - **Recommendation:**
      - In absence of comprehensive study, slates/tablets should be open to all NB categories & limits (based on Perf score) and not lumped under CAT 0 as proposed during the webinar.

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<sup>2</sup> Tablet Adoption & Insights Report, Consumer Technology, The NPG Group, Inc. January 2012

- For Energy Star Version 7.0, slates/tablets need to be carved out the NB category based on a separate slate/tablet study (part of Version 6.1 data collection)
- Two-in-one computers should similarly follow all NB categories and limits (based on Perf score).

**Mobile/Portable AIO questions:**

1. How prevalent are these products?
  - **Comments:** This segment is one of the growth segments under AIO categories, as demonstrated by many shipping models during the 2013 holiday season
2. How are these products currently handled/
  - **Comments:** Several manufacturers and CBs have qualified mobile/portable AIO systems for Energy Star V5.2, under Desktop/Integrated desktop computers category and TEC requirements. Industry recommends that these form factors continue to qualify under Energy Star V6.0 DT/Integrated DT computer criteria.
3. How to separate from Notebooks. What is the definition of limited portability vs. portability?
  - **Comments:** Notebooks must have a keyboard engineered for standard clamshell or 2 in 1 design (convertible or detachable), while keyboard is optional for portable/mobile AIO.
  - Regarding **portability**, Portable AIO's are designed with the intent to provide flexibility and limited portability to the end user to select a preferred location for use. While the user has the option to move the Portable AIO to different locations, typically when in use the Portable AIO will remain in a permanent location due to the size and weight of the product. A Portable AIO should not be considered as a mobile device like a notebook or tablet which is designed to be carried by the user and for use on the move in different locations e.g. airplane, metro etc. Portable All-in-Ones (including models with on board battery packs) should be considered as an integrated desktop for the purposes of Energy Star V6.0

**General Comments:**

- **Partner Commitments:**
  - **Non-energy attributes (NEA):** Industry proposes that EPA revisit section 3.2 Design for disassembly & recyclability for slates/tablets since the intent of this language were based upon typical notebooks & desktops.
  - **ENERGY STAR Labeling (section 6.1):** Industry has Concerns on current labeling options in ENERGY STAR V6.0 section 6.1-6.4
    - Requirement under 6.1.1 section 1) Labeling via a permanent or temporary label. Slates/Tablets have very small form factors and looks/aesthetics are an important factor for these devices having to label the Energy star logo physically will be detrimental to the look of the product which manufacturers want to maintain.

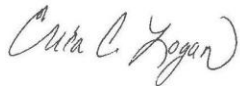
Recommend that this requirement either be optional or removed from Slates/Tablets.

- Requirement under 6.1.1 section 2a) of Electronic labeling appearing on system start up is no longer practical as people don't turn their Slates/Tablets off and restart them as often as Notebooks/Desktops. This should be excluded from Slates/Tablets or make it optional.
- Requirement under 6.1.1 section 2b) of Electronic labeling within the system power settings dialog window. Also this is not feasible for Slates/Tablets as there are no system power settings available for Slates/Tablets. Recommend to remove this requirement.
- **Labeling recommendations for Slates/Tablets:**
  - Labeling could be either on the product or packaging or websites. Either one or more of the options would comply with Energy star labeling requirements.
- **Scope (section 2):**
  - Modify Included and Excluded products list
- **Certification Criteria (section 3):**
  - Address power management for always-connected (no sleep) slates/tablets (3.3.1). Add new column for slates/tablets in Table 2 (Power Management Requirements)
  - Address slates/tablets under section 3.5.1 (TEC calculations). Update TEC equation, and mode weightings for slates tablets (Equation 1, Table 3, 4)
- **User Interface (section 5):** Is the user interface standard IEEE1621 applicable for slates/tablets?
- **Considerations for future revisions (section 7):** Update it based on slates/tablets additions,
- **Appendix A:** Update with Slates/Tablets sample calculations
- **Final Test Methods:**
  - **Test Conduct (section 5.2):** Update this section to address slates/tablets, including display warm-up time, luminance levels for testing.
  - **Other considerations:** What wireless radios need to be on during testing? For consistency with the Notebook testing methodology, the test should be done where:
    - Wireless is on.
    - Bluetooth off.
    - Cellular data (if available) - off
  - When plugged into a wall, it is likely to be charging in a location with WIFI → Wireless ON, Cellular data would be off (Airplane mode may not be a realistic use case).
  - **Testing for short idle:**
    - Recommend not to use Notebook test method of setting background wallpaper for testing short idle. Different Slates/Tablets have different icons and colors, and the background is not fully displayed.
    - Recommend to use the stock/default app for photo viewing to calibrate the luminance using the 3 bar image.

- Use the same stock/default app for photo viewing to measure the power levels with the EPA chosen image (which is the EPA webpage).
- Note: The testing of Slates/Tablets would require that the batteries for the devices and its accessories to be fully charged.
- **Timeline:** Need more specific dates for ENERGY STAR V6.1 drafts and final specification (not range)

We would be pleased to discuss any elements of these comments in greater detail.

Sincerely,



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#### **About ITI**

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