



September 24, 2019

To: computers@energystar.gov

From: Information Technology Industry Council (ITI)

Re: Final Draft, Version 8.0 ENERGY STAR Computer specification and test method

The Information Technology Industry Council (ITI) appreciates the opportunity to provide comments for EPA's ENERGY STAR® for Computers, v8 Final Draft specification. Our comments below are mostly editorial. However, industry is currently evaluating the switchable graphics adder and plans to submit a new proposal with data, and is requesting EPA for one week extension with the submission date of October 1, 2019.

- 1. Base TEC calculation including market pass rate methodology:** ITI appreciates a spirited discussion with EPA on this topic. EPA noted in its response to stakeholder comments that using ENERGY STAR Guiding Principles *'it is typically possible to achieve a balance among key principles of the program by selecting efficiency levels reflective of top 25% of models available on the market.'* Industry's view is that in the spirit of continuous improvements these guiding principles need to be revisited to reflect the market dynamics. As base TEC limits become increasingly stringent, it is becoming ever more important to ensure that performance limits accurately reflect the energy policy goals of the ENERGY STAR program. If our calculations are based on a slice of what is already the best performing devices on the market, the QPL will reflect the "best of the best", but not the top 25% of shipping products on the market. As a part of on-going EPA/Stakeholder dialogue, we propose more discussion on this topic to help improve the process prior to next ENERGY STAR specification revision. Industry had provided comments to draft 2 in Appendix A "ENERGY STAR Qualified Products List (QPL) vs Market Pass Rate", an analysis for EPA's consideration. We could use this analysis as a basis for the stakeholder discussion.
- 2. Full network connectivity:** We appreciate the opportunity to discuss our comments with EPA, including our new proposal on Full network connectivity Option 2 incentives for systems with Alternative Low Power Modes (ALPM), based on EPA's earlier feedback. We feel that changes EPA made in the Final Draft, while challenging, provide the right TEC incentives to further reduce power for systems capable of Sleep Mode or an Alternatives Low Power Mode.
- 3. Touch Technology**
ITI requests EPA provide the same touch adder as was provided for ENERGY STAR Displays version 8.0 adders to account for the additional power consumption required for this capability.

Equation 6: Energy Allowance for Touch Technology (E_T) for Monitors

$$E_T = 0.17 \times E_{TEC_MAX}$$

Where:

- E_T is the energy allowance for Touch Technology in kWh; and
- E_{TEC_MAX} is the Maximum TEC in kWh, per Table 1.

- 4. Display Connection Priority:** ITI appreciates EPA/DOE aligning with California Energy Commission computer standard for both Display Interface and Display Resolution during testing of Computers that require external monitors.

Global Headquarters
1101 K Street NW, Suite 610
Washington, D.C. 20005, USA
+1 202-737-8888

Europe Office
Rue de la Loi 227
Brussels - 1040, Belgium
+32 (0)2-321-10-90

 info@itic.org

 itic.org

Recommendation: ITI would recommend that under ‘Other’ category more examples need to be provided as follows. The way it is currently stated leaves an impression that only ‘Thunderbolt 3’ example qualifies under ‘Other’.

- I. Display Port
- II. HDMI
- III. DVI
- IV. VGA
- V. Other (e.g., Thunderbolt, USB-C, etc.)

Details:

140 **5.3 Preparing External Displays for Desktops**

141 A) Display Connection Priority

- 142 1) If the UUT has a port that supports switchable graphics capable of automatic switching, use that
- 143 port.
- 144 2) If a discrete GPU is installed, connect to that GPU, except for where it conflicts with Section 5.3
- 145 (A)(1) in this test method.
- 146 3) If no discrete or automatically switchable GPU is installed, choose a connection to an integrated
- 147 GPU.
- 148 4) If multiple ports meet the requirements in Section 5.3 (A)(1) to 5.3 (A)(3) of this test method, test
- 149 with the first available interface from the list below.

External Display Connection Priority
i. DisplayPort
ii. HDMI
iii. DVI
iv. VGA
v. Other (i.e. Thunderbolt 3)

150 **Note:** DOE has added a display connection priority to improve testing repeatability and uniformity. The
 151 proposed priority was in response to stakeholder input.

152 It is important to distinguish the connection protocol with the connection form factor. Alternate mode
 153 connection protocols have been created for various connection form factors. For example, USB-C can
 154 support DisplayPort, Thunderbolt 3, HDMI, and other protocols. And some DisplayPort interfaces can
 155 support the DisplayPort protocol and the Thunderbol 3 protocol. The connection priority listed above
 156 specifies the connection protocol rather than the form factor.

157 EPA and DOE request feedback on the priority order and whether there are other factors that should be
 158 considered in selecting a display connection when multiple interfaces exist.

5. **LAN Adder >1G to <10G:** ITI appreciate EPA granting an adder which is about 50% of current power consumption, to incentivize LAN chip manufacturers further decrease power at speeds between 1 Gbps and 10 Gbps for their initial product designs. ITI proposes the following editorial changes.

Page 17

Recommendation: EPA should align LAN Adder Name with footnote description. The adder name should be changed to **TEC_{>1 to <10GLAN} (kWh)^{Xiii} both in the Table 11 and footnote Xiii below**

4
5

Table 11: Functional Adder Allowances for Desktop, Integrated Desktop, Thin Client, and Notebook Computers

Function	Desktop	Integrated Desktop	Notebook
TEC _{2.5-5GLAN} (kWh) ^{xiii}		4.0	N/A
TEC _{10GLAN} (kWh) ^{xiv}		18.0	N/A

xiii TEC_{>1 to <10GLAN} Adder: Applies once if system contains an Ethernet port with rated throughput greater than 1Gb/s but less than 10 Gb/s.

Page 13

Recommendation: EPA needs to include G_{LAN} adder in Equation 2:

Equation 2: E_{TEC_MAX} Calculation for Desktop, Integrated Desktop, and Notebook Computers

456 **Equation 2: E_{TEC_MAX} Calculation for Desktop, Integrated Desktop, and Notebook Computers**

457
$$E_{TEC_MAX} = (1 + ALLOWANCE_{PSU} + ALLOWANCE_{PROXY}) \times (TEC_{BASE} + TEC_{MEMORY} + TEC_{GRAPHICS} +$$

 458
$$TEC_{STORAGE} + TEC_{INT_DISPLAY} + TEC_{SWITCHABLE} + TEC_{MOBILEWORKSTATION})$$

Recommendation: The new equation should be:

$$E_{TEC_MAX} = (1 + ALLOWANCE_{PSU} + ALLOWANCE_{PROXY} + Allowance_{Touch}) \times (TEC_{BASE} + TEC_{MEMORY} + TEC_{GRAPHICS} + TEC_{STORAGE} + TEC_{INT_DISPLAY} + TEC_{SWITCHABLE} + TEC_{MOBILEWORKSTATION} + TEC_{GLAN})$$

6. Internal Power Supplies: Page 8

312 3.2.2 Internal Power Supply (IPS) Requirements: IPSs used in Computers eligible under this
 313 specification must meet the following requirements when tested using the Generalized Internal
 314 Power Supply Efficiency Test Protocol, Rev. 6.6 (available at
 315 http://www.plugloadsolutions.com/docs/collatrl/print/Generalized_Internal_Power_Supply_Efficiency_Test_Protocol_R6.6.pdf).

The above link has out of date reference to current test procedure. **Recommendation:** It should be restated as follows:

312 3.2.2 Internal Power Supply (IPS) Requirements: IPSs used in Computers eligible under this
 313 specification must meet the following requirements when tested using the Generalized Internal
 314 Power Supply Efficiency Test Protocol, Rev. 6.7.1 (available at
 315 https://www.plugloadsolutions.com/docs/collatrl/print/Generalized_Internal_Power_Supply_Efficiency_Test_Protocol_R6.7.1.pdf).

7. External Power Supplies: Page 8

331 ii. Multiple-voltage EPSs meeting Level VI or higher shall include the Level VI or higher
 332 marking.

Recommendation: EPA should adopt DOE terminology

331 ii. **Adaptive** EPSs meeting Level VI or higher shall include the Level VI or higher
 332 marking.

8. **Qualified Products List (QPL):** ITI requests EPA to share the changes EPA is planning to make in the new QPL. ITI prefers relevant data and calculations on adders be provided in the QPL not simply the sum of them. This would assist industry in its analysis and will accelerate responses times from industry during next revision of the specification.
9. **ENERGY STAR Certification:** ITI request input into language EPA plans to provide to the Certification Bodies & Test Labs in regard to models not requiring to be retested for version 8.0 to ensure additional testing is not required for Notebooks, Mobile Workstation, Slate/Tablet, Two-In-One Notebook, or Mobile Thin Clients.

10. **Resume Time Requirements: Pages 11 & 18**

377 **3.5 Requirements for Desktop, Integrated Desktop, and Notebook Computers**

378 3.5.1 Resume Time Requirement: Notebook computers are required to wake from sleep or an
 379 alternative low power mode with a latency of less than or equal to 5 seconds from initiation of
 380 wake event to system becoming fully usable including rendering of display. Desktop and
 381 Integrated Desktop Computers shall meet this same requirement, but with a latency of less than
 382 or equal to 10 seconds. Manufacturers shall self-declare that the product can meet this
 383 requirementⁱⁱⁱ.

iii For purposes of ENERGY STAR third-party certification, these requirements shall not be reviewed when products are initially certified nor during subsequent verification testing. Rather, EPA reserves the right to request supporting documentation at any time.

521 **3.6 Requirements for Slates/Tablets and Portable All-In-One Computers**

522 3.6.1 Slates/Tablets and Portable All-In-One Computers shall follow **all** of the requirements for
 523 Notebook Computers in Section 3.5 above, including calculations of the following:

- 524 i. Calculated Typical Energy Consumption (E_{TEC}), using Equation 1 with the Notebook
 525 Computer Mode Weightings from Table 5.
- 526 ii. Calculated Maximum Allowed Typical Energy Consumption (E_{TEC_MAX}), using Equation 2 with
 527 the appropriate base Notebook Computer allowance from Table 10, and applicable Notebook
 528 Computer functional adder allowances from Table 11.

Recommendation: ITI requests EPA include language stating Workstations & Thin Clients are exempt from the Resume Time Requirements

11. **Section 7: Consideration for Future Revisions (Section 7, Page 22):**

Notebooks PC mode weightings: ITI recommends that EPA add a note regarding inclusion of new Notebook mode weightings for ENERGY STAR version 9. As EPA pointed out in the ENERGY STAR v8.0 Draft 1 webinar that EPA had received over 1.2 million individual Notebook data points with a variety and breadth equivalent to desktop data. The mode weighting summary for notebooks was published. EPA further noted that given the recent finalization of Version 7.1, it would defer implementation of new Notebooks mode weightings until Version 9.0.