



June 4, 2024

Ryan Fogle

ENERGY STAR® Program  
US Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

Dear Mr. Fogle,

Advanced Micro Devices (AMD) appreciates the opportunity to provide stakeholder feedback following the May 6, 2024 publication of the Draft 2 specification for ENERGY STAR® for Computers version 9.0.

We support the premise that the primary purposes of the ENERGY STAR for Computers specification are: 1) to reduce environmental impacts by minimizing the energy consumption of the computer products that are required for use by governments, businesses and consumers, and 2) to provide a logo program that fairly and clearly identifies computer products that implement industry best-practices in energy-efficient design and power-management.

Compute resources, graphics, form-factors and product families evolve over time. We support the use of Product Types to differentiate categories of pass/fail criteria and we support reasonable incentives to encourage the implementation of effective power management, efficient scalability and optimal selections of energy-efficient components.

As a caveat, statistics can lead to erroneous conclusions, so while the Draft 2 criteria may have chosen a “top quartile” of the limited set of computers in the database that was used for analysis of pass/fail criteria, the database does not represent the complete set of products that are currently, nor will be, in the market. The spreadsheet/database also leaves out SKU configurations that would be helpful in assessing the power consumption and impacts of adders for different device choices and combinations of features. So, making “top quartile” pass/fail criteria based solely upon the “maximum” configurations included in the spreadsheet, can lead to selection of the wrong  $TEC_{BASE}$  values and adders, and in some cases may encourage implementation of higher energy-use SKUs in order to reach ENERGY STAR compliance.

To overcome some of these issues, and to enhance the fairness and clarity of the criteria in the next draft, after assessing the impact on the portfolio of computer products with AMD technology, the team at AMD strongly requests the following edits:

**A. Technical corrections and essential improvements to the specification:**

1. **Table 6, Line 460:** Increase  $TEC_{BASE}$  for Desktops to **36.2 kWh**, reduce the Desktop  $TEC_{MEMORY}$  equation to **0.15 x GB**, and reduce the Desktop  $TEC_{STORAGE}$  adder for 3.5" HDDs to **12 kWh**.
  - a. From our power analysis of Desktop Computers, we require the **Desktop  $TEC_{BASE}$**  value to be >36 kWh to support the base TEC power required in Desktop platforms. Minor reductions to adders may be used to balance this requirement.
  - b. To support a  $TEC_{BASE}$  change to 36.2, scalability can still be achieved with a  $TEC_{MEMORY}$  equation of 0.15 x GB, and a subset of 3.5" HDDs can still be supported with a smaller 3.5" HDD storage adder of  $\geq 12$  kWh.
  - c. With the limited set of products in the database that tend to be maximized configurations, the passing criteria should be the top 27% of that database, to better correlate to the top quartile for the total market.
2. **Table 7, Line 474:** For  $TEC_{MEMORY}$ , change the adder equation for Notebooks to at least **0.1 x GB** to support the scalable power consumption of both DDR5 and LPDDR5 memory commonly used today, and LPDDR6 that is coming soon.
  - a. The specification shouldn't implicitly require a specific memory technology (e.g. LPDDR5) that must be used on all ENERGY STAR Notebooks to meet the criteria.
  - b. Many governments, businesses and consumers opt for Notebook DDR5 memory designs over LPDDR5, and ENERGY STAR should support that purchasing requirement. DDR5 memory products are commonly preferred in Mobile Workstations and in many commercial and consumer Notebooks.
3. **Table 7, Line 474:** Change the Notebook  $TEC_{STORAGE}$  adder from N/A to allow a 0.4 kWh adder for a second SSD and 0.8 kWh if it's any other type of storage device.
  - a. Adding this recommended Notebook  $TEC_{STORAGE}$  adder makes no difference in the Notebook passing percentage of the published spreadsheet/database, but including this adder will be a fairer and more scalable method to assure high-quality compliance testing.
  - b. Storage device power is no different in Notebooks than when those same storage devices are installed in Desktops, so Notebook storage needs an adder.
  - c. Please also consider supporting a 2.1 kWh adder if a second device is an HDD.

4. **Section 1 A) 3) after Line 58**, add a new Product Type: “e) Rugged Notebook: A Notebook Computer that is tested to meet a rugged computer standard, e.g. MIL-STD 810G, MIL-STD 461G, IP66 or IEC 60529.”
5. **Table 7, Line 474**: Add a new Notebook **TEC<sub>RUGGED</sub>** adder of 7 kWh, applicable to Notebook Computers meeting a newly-proposed **Rugged Notebook** definition. A simpler alternative would be to add a footnote to the **TEC<sub>MOBILEWORKSTATION</sub>** adder, allowing a computer meeting the Rugged Notebook definition to claim that adder.
  - a. Rugged Notebook computers are required by the military, government and industrial businesses, and have higher power consumption than a commercial or consumer Notebook Computer to achieve the required upgradeability and resilience. There are similar power requirements to a Mobile Workstation, but with certifications and standards that are different than the Mobile Workstation definition.
  - b. ENERGY STAR is a requirement for government bids and the tightened requirements of v9.0 Draft 2 make it virtually impossible for ENERGY STAR compliance by Rugged Notebook computers that previously passed v8.0.
6. **Lines 325-326, Section 3.2.2**: The URL is out of date for the *Generalized Internal Power Supply Efficiency Test Protocol*. The following URL is presently correct, but EPRI or CLEAResult should advise on a persistent link that the final draft should reference: **[https://www.clearesult.com/sites/default/files/program\\_resources/Generalized\\_Internal\\_Power\\_Supply\\_Efficiency\\_Test\\_Protocol\\_R6.7.1.pdf](https://www.clearesult.com/sites/default/files/program_resources/Generalized_Internal_Power_Supply_Efficiency_Test_Protocol_R6.7.1.pdf)**
  - c. Please embed the hyperlinks of all listed URLs in the next specification’s PDF.
7. **Line 631, Section 5.1.1**: The URL is a dead link for the released IEEE 1621-2004 *Standard for User Interface Elements in Power Control of Electronic Devices Employed in Office/Consumer Environments*, and should be changed to the following IEEE website persistent link: <https://ieeexplore.ieee.org/servlet/opac?punumber=9863> . Note that the IEEE standards document at this URL requires IEEE membership, subscription or payment. A Lawrence Berkeley Labs download of a free preliminary draft of the standard is also available at: <https://ea-controls.lbl.gov/1621/docs/1621dec1502.pdf> .
8. **Lines 645-647, Section 7.1.1**: We recommend that ENERGY STAR collaborate with the non-profit Standards Performance Evaluation Corporation ([SPEC](#)), on the creation and adoption of any active energy efficiency benchmarks that may be considered in the future for Workstations, Desktops, Integrated Desktops and/or Notebooks.

**B. Editorial corrections improving clarity and correctness in the specification:**

1. **Errors in the ITI-provided spreadsheet** may have induced inaccuracies in Draft 2 calculations, so please check for the following potential problems in the EPA [spreadsheet](#) formulas to assure Final Draft passing percentile assumptions are correct:
  - a. There are many ITI spreadsheet instances of Desktops (and at least one Integrated Desktop) where there is more than one storage device, yet no storage adder is applied. We assume these are a 3.5" HDD as the second drive and should get the appropriate adder. Also at least one computer was noted to have a second "HDD", but didn't say which size, so it didn't get any adder, thus assume 3.5". Additional desktop spreadsheet errors may not have credited hybrid storage devices with the correct adder.
  - b. Dozens of Desktop entries were not identified as iGfx configurations despite listing zero FB\_BW, and erroneously received an adder for discrete graphics.
  - c. The 10 gigabit ethernet adder is not applied to the handful of Desktop systems with that feature.
  - d. The  $TEC_{\text{GRAPHICS}}$  equation for Notebooks has an error in the ITI spreadsheet, using 0.0008 instead of the specified 0.008 as a multiplier of FB\_BW.
2. **Line 70, Section 1 A) 5) b):** Please change the start of this sentence to read "Lacking a keyboard..."
3. **Line 141, Section 1 C) 4):** Please change the word "mated" to "paired" since the CPU and GPU may coordinate their functions without being physically joined nor adjacent.
4. **Line 161, Section 1 C) 8):** Please change the words "consumer product" to "computer product" since manufacturers use an EPS in several commercial **and** consumer computer products. The term *consumer* means a non-business, non-government user.
5. **Line 187, Section 1 D) 2) a):** Please change "i.e." to "e.g." since there are displays (e.g. OLED) that do not have a backlight, but reduce power in other effective ways during a computer's Long Idle, Sleep and Off modes.
6. **Line 253, Section 1 E) 7):** Please change "Ethernet" to "Network Interface" since it is possible to wake-on-LAN via Wi-Fi network activity.
7. **Line 293, Section 2.2.1:** The URL for downloading ENERGY STAR specifications is not correct. The listed URL points to the ENERGY STAR products page, where there is no link to specifications. The correct URL is: <https://www.energystar.gov/products/spec>

8. **Line 425, Section 3.5.2, iv:** We believe the Draft 2 specification actually meant for this sentence to read “...an allowance equal to 7 kWh/year...” instead of “...an allowance equal to 7 watts...”
  - a. However, if 7 Watts is correct, then please change the Table 7  $TEC_{SWITCHABLE}$  adder for Desktops and Integrated Desktops to 61.32 kWh.
9. **Lines 427-430:** Please put a box around the Note aspect of this text and put the **Equation 1** heading in a separate paragraph that is just above the  $E_{TEC}$  equation.
10. **Lines 443 and 445, Tables 4 and 5:** change the table headings to be **Mode** and **Weighting**, rather than **Mode Weighting** and **Conventional**.
11. In the Draft 2 specification PDF electronic file, the “Document Properties” have a field for *Title* that is incorrectly listed as “**Final Version 6.1 Computer Specification.**” As a result, the URL for the Draft 2 document creates a browser tab that reads “Final Version 6.1 Computer Specification” and that is very confusing. The error most likely originates in the MS-Word file that is used to create the PDF, so in the *Windows File Explorer* application, edit the *Title* of the MS-Word file after right-clicking the filename, clicking on the *Details* tab and selecting *Properties*.
12. There is inconsistency in the sub-section alphanumeric formatting between Section 1 (hierarchy is 1, A, 1, a, 1, a) and Sections 2-7 (hierarchy is 2, 2.1, 2.1.1, i). Change isn’t required, but consistency can reduce confusion.

We are available to discuss any of these changes and share the rationale behind our proposed changes to the ENERGY STAR for Computers v9.0 Draft 2 document and its criteria. As a contributor to industry stakeholder feedback collaboratively created in the Information Technology Industry Council (ITI), AMD also supports the proposals from that consortium.

Sincerely,

Roger Tiple

**On behalf of the AMD Computing and Graphics ENERGY STAR Review Team**

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7171 Southwest Pkwy, Austin, TX 78735

**AMD**  
together we advance\_

**RYZEN**  
**RADEON**