

# Comments on Energy Star Program Requirements for Computers (Version 5.0 DRAFT 1)

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## Commitment

### Declaration of Energy Star compliant products on lists on an annual basis:

- It would be highly recommended that new products complying with Energy Star are to be published on the US or EU database. Provision of information on complying products only once per year will always result in a to some extent outdated inaccurate database which is then not useful as a source of information for buyers.
- As a matter of fact a current EU-Regulation (EC No 106/2008) requires EU institutions and central Member State government authorities to use energy efficiency criteria no less demanding than those defined in the ENERGY STAR programme when purchasing office equipment. Thus it is appreciated if manufacturers provide data on registered products immediately after putting on the market to support retailers and purchasers in public procurement procedures.
- We know from experience, that product information published on the EU web database doesn't reflect actual availability in national markets. Therefore we suggest tackling this issue in the Partner Commitment specification.

## Definitions

### a) General definitions for “computer”

The currently used definition for “computer” seems appropriate and sufficient still. In aiming at more coherence the exclusion of desktop derived servers (DDS) may be reasonable for several reasons, e.g.:

- In principle servers – and of course this is valid DDS too - are directly linked with common input and output devices only for maintenance reasons. DDS are designed to meet completely different requirements compared to client based products like personal computers and notebooks.

- The recently published draft for Programme Requirements for Computer Servers serve as ideal window of opportunity thus providing a quite more appropriate path for dealing with DDS.

## **b) General definitions for operational modes**

### **Definitions for Off Mode and Sleep Mode**

Definitions for off mode and sleep mode are distinct and sufficient.

### **Definitions for Idle State and Active State**

- The proposed definitions for Idle state and Active state include some fuzziness since active mode is an umbrella term covering Idle mode. Moreover the description of active state as the mode in which the EEPA workload will be run offers a risk for ambiguity.
- For the moment data for considered workloads is missing in the draft paper. We ask for detailed information regarding the EEPA workload. In this context we recommend to build up an empirical basis for typical and representative workloads amongst users and stakeholders to avoid arriving at any artificial or derived workload definitions.

## **c) Definitions for Energy Efficiency Performance Assessment**

### **Definitions for EEPA and EEPA Tool**

- Unfortunately the explanatory notes for EEPA and EEPA Tool are rather scarce at this point. We ask for a more comprehensive explanation of this concept enabling an in-depth assessment.
- Especially we are interested in the tangible concept for a delineation of an evaluation of “computer effectiveness” (line 391). Does EPA intend to define one aggregated figure? In this case a clear specification for this concept would be needed.

### **Definition for Workload**

- For the moment it’s not clear who will define workloads independently from different platforms (PC and MAC, versions of office suites). Will there be a feasibility for specifying one common workload?

## **Energy Efficiency and Power Management Criteria**

### **a) Power Supply Efficiency Requirements**

The proposed efficiency requirements for power supplies are appreciated. Expecting further development in this area we recommend implementing a 2-tiered approach covering still more ambitious targets at a later stage.

### **b) Efficiency and Performance Requirements**

#### **Concept for Desktop, Integrated Computer, Notebook and Tablet PC Levels – Energy Efficiency performance Assessment and Associated Levels**

We cherish the attempt as proposed in the draft paper to look at a more holistic view in assessing computer efficiency.

## Formula $E_{\text{annual}}$ , Parameters $T_{\text{off}}$ , $T_{\text{sleep}}$ , $T_{\text{idle}}$ , and $N_{\text{active}}$

- We are **curious about the feasibility determining a realistic annual power consumption** based on this approach. Is there an intention to a priori define **values for  $T_{\text{off}}$ ,  $T_{\text{sleep}}$  and  $T_{\text{idle}}$**  or should this be in the hand of manufactures to individually choose their values? The same issue raises for the **specification of  $N_{\text{active}}$** . From our understanding the value for  $E_{\text{active}}$  will be product dependent in any case.
- In different **business environments values for  $T_i$  as well for  $N$  may vary to a great extent**. Most presumably a “standardized” workload applied by the EEPA Tool will have synthetic character and will miss everyday life relevance. Thus we **doubt that this concept based on annual energy consumption expressed in the formula  $E_{\text{annual}}$  is an optimum solution**. Comparison for purchasers and users may be challenging if only one aggregated potentially misleading figure will be documented.

## Common Workloads

- Our own measurements (see Annex) show that the **value for On idle (in a small tolerance band) is most significant and the outstanding factor determining the energy consumption** in operational time. In the context of real office use computing workloads (writing texts, sending emails, doing spreadsheet analysis, using web browsers, etc.) are negligible facing today’s PC’s computing performance.
- Consequently and aiming at very simple but effective approach **we suggest to define criteria for On idle mode not only for transition period but as an general long term criterion. Moreover requirements for  $P_{\text{sleep}}$  and  $P_{\text{off}}$  may also be handled with fixed levels**, as these levels are comparatively easy to handle.
- For sure the situation will be different for applications predominately run on workstations as the related workloads will be significant in terms of energy use.

## EEPA approach

- As stated in the draft document the EEPA approach shall have benefits regarding a more **effective scaling of efficiency metrics to the performance and functionality** of a given product. **How can this be managed and implemented?** For the moment **we are not sure about the feasibility** of this approach for real world operation based on the explanatory remarks in the document.
- We are wondering about the involvement of the EC technical group in the discussion of the EEcoMark, since no detailed information has been made available in this regard yet. We would appreciate comprehensive information on the current stage of the benchmark development to be able to evaluate the concept.

## Workstations levels

- Unfortunately the above mentioned approach (EEPA tool) according to the EPA assessment would not meet the requirements for evaluation of workstations, as these products will likely be charged with significant workloads.

## Game Console Levels

- Game consoles are supposed to be challenged with distinct computing workloads. Lacking a clear definition for idle or active mode it seems difficult setting related requirements. Quite commonly people will use game consoles for viewing videos on

DVD too. At first glance we suggest considering “on average” levels for a replay mode according to measurement based on IEC 62087.

### **Desktop derived server levels**

- As mentioned above we insistently propose to cover desktop derived servers in upcoming server specification.

### **Thin clients**

- There are different types or designs of thin clients on the market. Thus a more detailed differentiation of thin client types should be sought (including monitor if applicable, number and type of interfaces, etc.)
- As a matter of fact thin clients can provide primary functionality only if they are connected to a server. Hence the measurement of power levels should be conducted in a network connected status requiring a distinct test procedure different to personal computers.

### **Requirement regarding Qualifying Families of Products**

- As stated in the draft paper in the case of multiple configurations only the highest power configuration should be registered and belonging data reported. However for customers seeking for most efficient products the current solution lacks information which is relevant for purchase decision. In this regard **we ask for reconsidering a reporting requirement for the least consuming product in the specific product family too.**

## Annex: Power Consumption Measurement for a Desktop PC

Measurement was accomplished with professional power analyser (sampling rate 200 kS/sec, averaging period 10 sec)

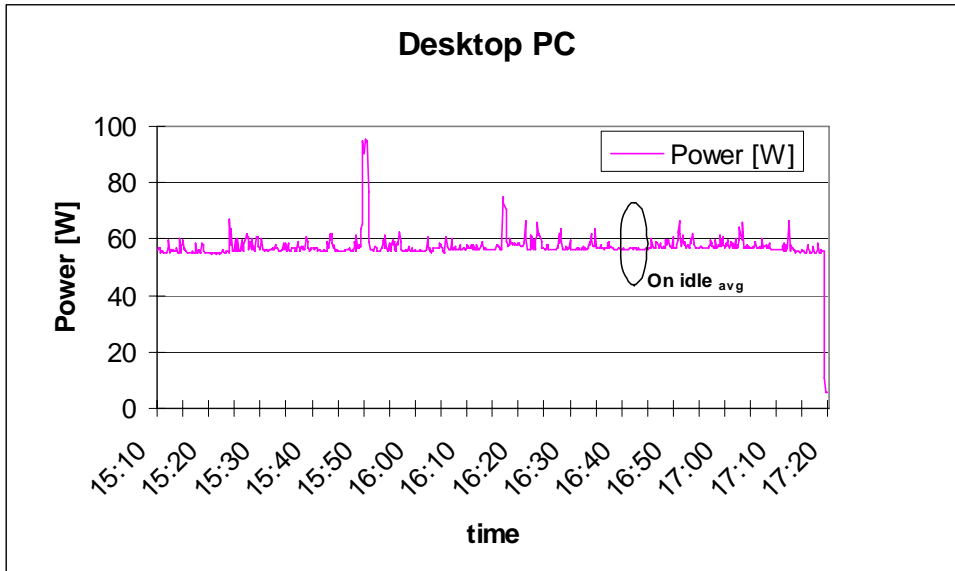


Figure 1: Power Consumption over Time for a Desktop-PC

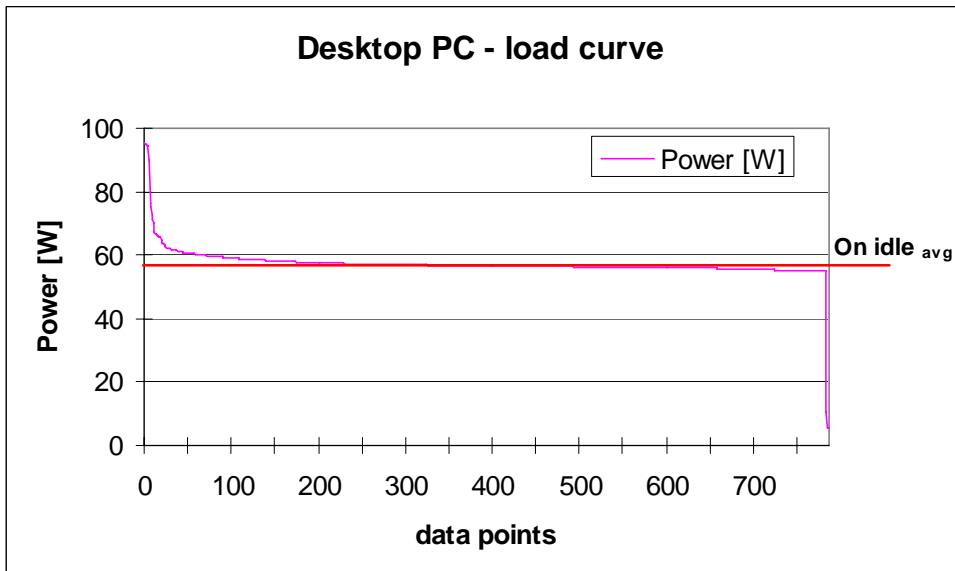


Figure 2: Load curve of Power Consumption of a Desktop-PC

Calculated share of energy consumption in active mode excluding on idle compared to total energy consumption amount to 1,5 %, i.e. this value is below required measurement uncertainty (according to Appendix A, Testing Requirements)