



**UK Market Transformation Programme (MTP) Technical Comments on
ENERGY STAR Programme Requirements for Computers Version 5.0
Draft 1, sent by US Environmental Protection Agency on
22 February 2008**

Notable features of the specification:

- Inclusion of thin client terminals (no levels yet).
- Exclusion of laptop docking stations (inclusion of these in Tier 2 was speculated upon previously).
- Continued inclusion of desktop derived servers, despite none having registered on the database so far.
- Continued inclusion of games consoles (also none registered), but with further work on specification requirements for these underway.
- Further definition of “energy efficiency performance approach” for specifying requirements for laptops and PCs (previously referred to as a benchmarking tool - some work still required).
- Timeline of a potential subsequent 2011 revision specified.

Page 6 – Desktop Derived Servers – MTP would question the effectiveness of the desktop derived server specification as there are no products currently registered on the EU (or apparently the US) database under this specification – it seems necessary to either review the requirements for desktop derived servers or remove them from the specification. Clarification or simplification of definitions may be one potential improvement – for example pre-installation of Microsoft Windows Home Server (or equivalent) as a simplified requirement may result in higher submissions.

Page 7 – Thin client definition – The thin client definition should make clearer that as thin clients rely on centralised server resources, they are likely to result in greater energy consumption on the server side than use of desktop and laptop PCs.

Page 9 – Inclusion of collection of modal power levels by EEPA tool – MTP would strongly support inclusion of the data collection of power consumption in each mode. Without this data, a clear interpretation of the annual energy figure is not possible. Modal values are important to understanding the potential savings and impacts of this new specification approach.

Page 9 – Internal Power Supply requirements – MTP supports the inclusion of ambitious internal power supply requirements harmonised with the Climate Savers Computing initiative.

Page 10 – External Power Supply requirements – MTP supports the inclusion of ambitious ENERGY STAR version 2.0 EPS requirements.

Page 10 – EEPA tool and associated levels

Annual energy consumption will be determined using the formula below:

$$E_{\text{annual}} = 8760 * (P_{\text{off}} * T_{\text{off}} + P_{\text{sleep}} * T_{\text{sleep}} + P_{\text{idle}} * T_{\text{idle}}) + E_{\text{active}} * N_{\text{active}}$$

where all P_x are power values in watts, all T_x are Time values in % of year, E_{active} is the energy above Idle measured when a computer runs the benchmark workload once (in kWh), and N_{workload} is the number of times each year the workload is assumed to typically run.

Notes on the above calculation:

1. Additional brackets needed otherwise the $E_{\text{active}} * N_{\text{active}}$ component is multiplied up to the annual level twice:
$$E_{\text{annual}} = ((365 * (P_{\text{off}} * T_{\text{off}} + P_{\text{sleep}} * T_{\text{sleep}} + P_{\text{idle}} * T_{\text{idle}})) + (E_{\text{active}} * N_{\text{active}}))$$
2. "Nactive" is in the formula but "Nworkload" in the description. The "Nactive" or "Nworkload" number will have a significant impact on the total formula.
3. $E_{\text{active}} * N_{\text{active}}$ is in kWh the other parts of the formula are in Wh.
4. There is no obvious allowance for unplugged time (though recognised this is a zero calculation, it may be worth including this for checking purposes to ensure that total % time adds to 100%). This is especially relevant for laptops, where they would not be expected to be spending all of their time in the above modes.
5. MTP would be interested in understanding what impact increasing processor speeds and RAM would have on $E_{\text{active}} * N_{\text{active}}$, and would recommend thorough data collection and analysis to justify and determine adder thresholds for memory and network interfaces (would expect network interface allowance to be small). In theory, RAM has potential to improve performance, so increased consumption requirements could be offset against reduced E_{active} consumption – potentially resulting in no requirement for additional consumption allowance.

MTP would request that the US EPA require all the above details to be entered on the online product declaration tool, and published on the database. This will enable easy working back to original modal values and more in-depth understanding of what the kWh value represents. It will enable improved assessment of the effectiveness of the specification (as can currently be difficult with TEC requirements due to the lack of comprehensive data availability on how the TEC value was arrived at).

Page 10 – EEPA tool and associated levels - MTP would ask for a requirement to be specified for standby consumption in order to ensure consistency with other EU and international initiatives, even if it is not possible for this value to be as low as 1W. MTP would also support information declaration in all modes of operation.

Page 13 – Thin clients – Again, MTP would like to stress the fact that it must be made clear that thin clients have additional server requirements that will not be accounted for in the specification, and that are over and above standard PC-related server consumption requirements.

Page 13 – Consideration of power management for games consoles – MTP test data shows that there are clear savings to be made through a games console specification – but the current computer specification does not serve this purpose, and it has not been possible for any games console manufacturers to test and qualify their products based on the current format. The merit of including games consoles in a “computer” specification is questionable. The architecture and operating of games consoles is sufficiently different to require different test methodologies to those for other computer types, and modes and power management operation may also have different definitions. It is suggested that games consoles may be better addressed in their own specification – particularly as they cannot be categorised as office equipment, and therefore should not strictly be included in the EU-US agreement.

Page 13 – Power management requirements -Wake on LAN and network connectivity requirements are focused on sleep mode. Is there an intention to address power management in off mode in future in order to ensure that computers in offices are not left on overnight for batch updates etc.?

Page 14 – Packet filter standards – It is suggested that EPA lead initiatives (or work closely with leading organisations) towards an industry standard configuration for direct packet filter configurations.

Page 15 – Power management information requirements – There is a need to address the confusing terminology and range of sleep mode options available to the user, through a clear and easy to understand guide on power management – for example, the user will need to have clear indication of the ranking of OS power management modes against energy consumption, to avoid confusion between i.e. windows terms for power management (standby) vs actual consumption levels as addressed by ENERGY STAR(sleep). The requirement in line 636 asks for information to be provided to the user regarding “How to properly wake the computer from Sleep mode.” It is suggested that this is made plural (“Sleep mode(s)”), as there may be multiple sleep modes configured.

Page 15 – Standardised data sheets – MTP would support provision of a standardised data sheet, which would include the EEPA score / kWh per year figure, modal consumption values and power supply efficiency. This should be clearly available with the product, and online in an easily accessible location.

Page 16 – ENERGY STAR to address a broader mix of energy and safety-related impacts – Could EPA provide more information on what the intention is of this statement?