EICTA position on ecodesign requirements on off mode and standby mode (LOT 6)

December 18th Brussels

1 Introduction

Last 19 October 2007, the members of the Consultation Forum had the opportunity to discuss the European Commission "working document on possible ecodesign requirements for standby and off-mode electric power consumption of electrical an electronic household and office equipment". EICTA welcomes the initiative of the European Commission to strive for a horizontal measure on the simplest energy consumption modes. Further EICTA appreciates the invitation to cooperate in a constructive way with the European Commission in order to arrive at an effective and feasible Implementing Measure regarding standby and off-mode losses.
This paper includes a number of proposals for amendments to several parts of the above mentioned working document, intended for clarification and consistency with a number of existing EU Directives.

2 Proposals

EICTA members have formed a dedicated team of specialists from different companies, who have worked together to arrive at the following proposals:

A. **Improved definition of Standby-mode**: The current definition of standby mode suffers from ambiguity. We propose the following wording[1]:

Standby:
This mode defines the status in which the energy using product is connected to a mains power source and only offers one or more of the following user oriented or protective functions:

- to facilitate the activation/deactivation of other functions by remote switch or timer
- continuous function: information or status display clocks

EICTA proposes that no examples are included in the final text of the Implementing Measure, as this will lead to ambiguity in the interpretation of the definition.

B. **Improved definition of product scope**. The product scope proposed in the Working document is open for multiple interpretations. An unambiguous definition to our opinion is a prerequisite for a level playing ground. Based on this consideration, we propose this definition of product scope:

Product Scope:
1. Electrical and electronic household and office equipment falling under the product categories specified in Directive 2002/96/EC, Annex IB, with the exceptions of
(1) equipment not corresponding to household and office equipment and
(2), products designed and placed on the market as Class A products per EuroNorm EN55022:1998 under the EMC Directive 2004/108/EC

[1] this wording is inspired by the first draft revision of IEC62301:2005.

To avoid ambiguity over the term "office equipment", EICTA proposes that the following explanatory notes be added to the definition of the product scope:

Office Equipment:
Energy-using Products are considered as office equipment when they are intended for day-to-day use by office workers, supporting them in the execution of their tasks. Such products are because of their nature left unattended at the end of the working day but stay connected to the power network. The EU green building program (www.eu-greenbuilding.org) lists the types of products involved as follows:

- PC, laptop and monitor and LCD panels
- Printer, printer-fax and fax machine and multifunctional device
- Copier and scanner
- Mailing machine
- Server
- WLAN and LAN routers
- Audio equipment and beamers
- Telephones and telephone switchboard
- Battery devices (wireless mice, switchboard)

Energy-using Products used by specialised professional workers as a crucial equipment in the accomplishment of their main task (telephone operators, print-room workers, production operators) are considered to be of professional or industrial nature and as such are out of scope for this measure.

Equipment for special purposes:
This Directive shall not apply to apparatus exclusively used for activities concerning public security, defence, State security (including the economic well being of the State in the case of activities pertaining to State security matters) and the activities of the State in the area of criminal law.
This exemption was used as well in Article 1 of Directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

C. Proposal for additional allowance for EMC filters and Complex EuP

EMC-filters
EMC filters are added to power connections in order to ensure immunity of the product to external radiation and to ensure protection of the environment from radiation from the product. Under the CE-marking scheme, EMC filters are to comply with EN60950-1, EN55022 and IEC61000-4-x series. We propose to allow an additional 0.3 W for each power connection (separate connector or phase of the power network) having an EMC filter, in order to avoid contradictions between the EuP directive and existing directives that are part of the CE-marking scheme.

Complex EuP
Complex EuP are made of two or more integrated modules. We propose to regard a complex EuP as a set of separate EuPs with each teir own energy consumption allowance for off-mode and standby mode, according to the two tiers proposed in the draft Implementing Measure and the additional allowance for EMC filters.

Technical foundation for this proposal will be found in the appendix to this document.

D. Improved definition of power management requirement: EICTA finds the requirement for power management is rather open ended. We propose the following wording:

Implementation of power management

Equipment shall be designed to achieve reduced power consumption, including when appropriate for the intended use of equipment, by offering a power management function or a similar function that switches equipment after the shortest possible period of time appropriate for the intended use of the equipment, into a condition with reduced energy consumption, when the equipment is not providing the main function, or when other energy-using product(s) are not dependent on its functions.

E. Proposal for transition period:

Transition period

Noting the two years provision of the revised EMC directive 2004/108/EC, EICTA proposes that a two years transition period be included in this IM.

F. **Definition of "product placed on the market"**: EICTA proposes to include in the Implementing Measure the following definition of "placing a product on the market". This definition was already proposed by EICTA in July 2006 for usage in all New Approach Directives:

In our view, a product is 'placed on the Community market' and 'made available to its users and consumers' only when it meets all 5 criteria hereinafter, i.e. it is:

- Finished, and therefore has left the design and manufacturing phase;
- Destined for distribution or direct sale in the Community market;
- Physically within the EU, at a manufacturer's or his authorised representative's
- location or in the absence of these, at the importer's location;
- Made available for the first time on the Community market;
- Immediately available for delivery upon request.

Conclusions and follow-up

In the opinion of the EICTA members, the above proposals are crucial in arriving at an unambiguous, effective and feasible implementing measure.
EICTA is willing to discuss these proposals with EC-representatives and other European Trade Associations that represent product groups affected by the standby and off-mode Implementing Measure.

Appendix

EICTA comments regarding off mode energy consumptions: lower limits due to EMC filtering and Safety regulations (LOT 6)

1 Introduction

The EuP directive proposes a horizontal requirement for standby and off mode energy consumption. A two-tier approach is chosen, where the allowance for both off mode and standby mode is:

- Tier I: 1.0 W plus additional 1.0 W for status display function in standby mode.
- Tier II: 0.5 W plus additional 0.5 W for status display function in standby mode.

The proposed requirements are contradictory to the restrictions on EMC-immunity/emissions and safety requirements for a number of EuPs.The EuP limits are incompatible with the requirements of EMC and Safety which by their very existence generate energy losses above the Tier II limits. This paper clarifies this contradiction and defines the type of products that are affected.

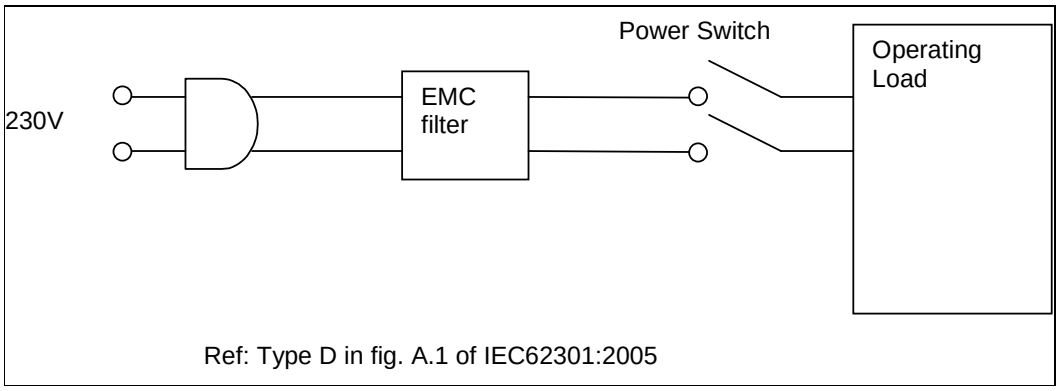
2 Constraints (other than EuP) for product designers

In principle, every EuP can be disconnected from the mains through a hard-off switch. The electronics product designer is faced with two issues with respect to hard-off switches:

1. EMC immunity and emissions.

EuP with electronic control functions on board are (as part of criteria conditional for CE-marking) subject to the EMC directive (2004/108/EC) and to be compliant with EN55022 and IEC61000-4-x series of standards. This means that EMC filters are to be applied for immunity to external electromagnetic (EM) disturbances and to suppress EM noise from being emitted. These filters are placed in the electrical mains cable at the position where the cable enters the housing of the product. EMC filters are built from capacitors and coils designed to cut off radio frequencies over particular ranges. Surge suppressors (varistors) form part of the circuit to provide immunity to mains transients.
In order to provide safety for the operator, according to EN60950-1 (also required for CE marking), the EMC filter is equipped with a so-called bleeder resistor, which ensures that the supply voltage disappears instantly after disconnection from the mains. This residual charge is due to the combination of capacitive components in the EMC filter. All of these EMC components connected to the mains will consume energy due to fundamental losses inherent in their construction. The designer has to decide to either put the EMC-filter in between the hard-off switch and the mains connection or put the hard-off switch between the EMC filter and the mains connection. Hard-off switches should be well reachable for operators (US disability regulation Section 508 compliance), so in console products (e.g. network printers, dishwashers), the off-switch will be placed some 80 cm above floor level, whereas in desktop or tabletop products (PC's, TV's) the off switch will be placed near the bottom of the product. In order to be effective, the EMC filter should be at the position where the mains cable enters the housing of the machine such that all EM noise generated by the machine is filtered before cabling to the external environment; this position is mostly just above the bottom of the product. The distance between the input connection and filter should be minimised to reduce EM pick-up on the wiring inside the machine which otherwise would be conducted on the unfiltered wires to the mains network. It is technically possible to integrate the hard-off switch with the EMC-filter, but this would imply the addition of EMC-screening for the part of the mains cables running inside the machine towards the integrated EMC-filter/off switch. Additional EMC-screening is costly and involves parts which have to be positioned inside the machine for apparently no function.

Thus the designer chooses the most cost effective and simple solution. In case of a console product, he will choose to place the EMC-filter in between the hard-off switch and the mains connection (see schematic drawings below).



On the right hand side of the power switch, no energy consumption is present when the switch is in off-position.

For every utilized phase of the power network, a separate EMC filter will be needed.
For every connection to a power network (products consisting of more than one module will have multiple connections), a separate EMC filter will be needed.

3 EMC filtering devices - energy consumption

Because of the bleeder resistor and the EMC components present in the EMC filtering device, the filter as used in the schematic drawing above uses a finite amount of power. Commonly available EMC filters with sufficient protection for 20A products consume roughly 0.24 W in nominal circumstances. This figure depends on the filter characteristics required for a given application and can be an order of magnitude higher for complex systems where faster speeds and more sensitive electronics are employed, and accordingly higher levels of EM noise are generated.

In order to check for compliance with a legal obligation, we will have to consider the resistance tolerances of the filters and the measuring accuracy.

- The bleeder resistor may vary with typically 10%,
- taking into account the very small power factors of these filters, the measuring accuracy will be at least 20%.

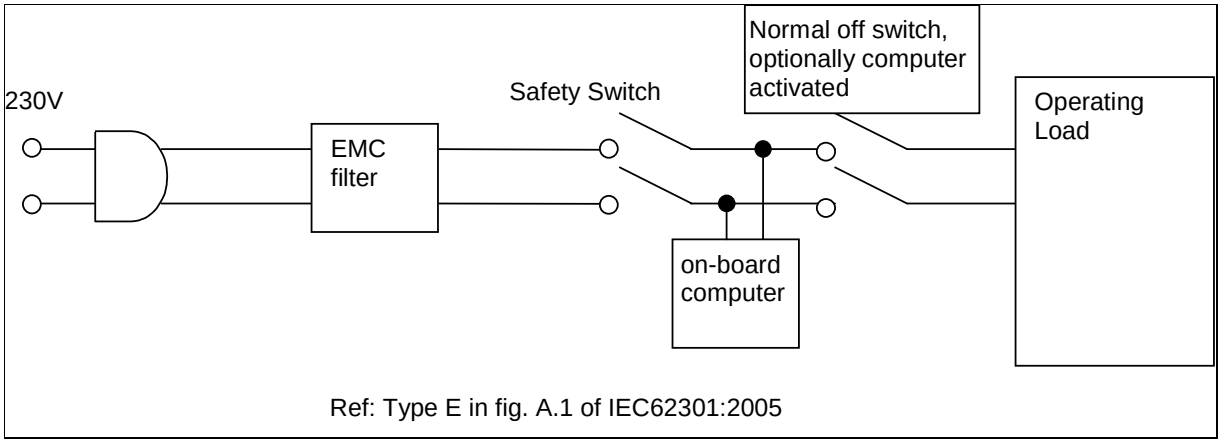
A realistic requirement for EMC filters would therefore be 1.3*0.24 = 0.32W.

3 Power switches, energy consumption.

The situation sketched in section 2 suggests a hard-off switch with manual activation. For reasons of controlling shut-down (see section 5) and in order to avoid damage to electrical and electronic components, the designer may want to choose a switch based on a small electronic circuit which in turn activates the main power switch only when the system is ok to be shutdown (that would be hidden away from the surface of the product and avoids mains wiring within the product). The small electronic circuit would remain powered even when the main switch is in the off position such that the system may be switched on. Such circuits consume about 0.5 W, they are similar to circuits responding to a remote control, but achieving lower consumption requires extremely high efficiency/costly power supplies, and is technically very challenging or even not possible.

4 Shut-down procedures of on-board computers.

A significant number of EuP have on-board computers running on an operating system (e.g. Windows, Linux, Unix) and using a Hard Disk drive for data storage. To shut down these products, a dedicated shut-down procedure is implemented, which ensures persistency of data and avoids damage to the Hard Disk and the data on it2. The user activates this controlled shut-down through some switch located on the front panel of the product. The product designer has a number of options to implement the transition to off-mode following the controlled shut-down procedure. One option is an automatic transition to hard-off after the controlled shut down. Another option is a separate hard-off switch, located away from the main operating panel. For safety reasons (a hard-off action may be required in case of emergency, without waiting for the controlled shut-down procedure), we usually choose to implement a separate hard-off switch, which is located on the rear side of the product.
In case of such a design, the simplified electrical scheme would like like this:



Ref: Type E in fig. A.1 of IEC62301:2005

The offmode normally present would then be a mode with the safety switch closed, so the on-board computer consumes additional offmode power.
We propose to regard this type of products as having two separately powered modules, each with their own requirements. This would be analogous to a system with a PC and a monitor and/or an external power supply.

N.B. Apart from on-board computers, other additional modules may be present in a complex EuP, that are sometimes internally powered, sometimes externally powered. From the discussions on the draft implementing measure, we understand that all these modules ("linked products") are considered to be separate EuP.

[2] damage as a result of uncontrolled shut-down may occur as the number of uncontrolled shut-down cycles increases, and should not exceed about 100 cylces. . Data loss is a likely event in any uncontrolled shutdown and should be avoided. Uncontrolled shut-down therefore is a suitable measure only for safety related situations.

5 Proposed limits on energy consumption for EuP

Based on the facts described in the previous sections, there are three possible functions consuming energy in offmode:

1. The bleeder resistor in the EMC filter, used because of safety regulations.
2. The circuit activating the main switch
3. Permanently connected PC power supply for standby mode.

The proposed Tier1 requirement for offmode is only technically feasible in combination with a manually operated hard-off switch for products having a maximum of 2 separately powered modules or using a maximum of 2 phases.
The proposed Tier2 requirement for offmode and standby mode is not feasible for products having the following characteristics:

- console model (switch at user position, filter at floor level) and
- being connected to more than one phase of the power network or
- having more than 1 separately powered module.

or

- having a separately powered off-switch apart from a main safety switch

We propose to reformulate the Requirements in such a way, that the requirements

1. allow an additional 0.3 W per EMC filter present in the product apart from the proposed requirements in the working document. An EMC filter would be allowed in a product per power connection and/or per phase used of the power network.
2. regard a complex EuP with one or more on-board modules (e.g. PC) as a set of separate EuPs with each their own energy consumption allowance for off-mode and standby mode. This may be compared to e.g. the 2W allowance in Energy Star for Imaging Equipment (OM products with more complex configurations, TEC does not specify standby/off limits) in table D of the Program Requirements document.

EICTA MEMBERSHIP

About EICTA:

EICTA, founded in 1999 is the voice of the European digital technology industry, which includes large and small companies in the Information and Communications Technology and Consumer Electronics Industry sectors. It is composed of 57 major multinational companies and 39 national associations from 27 European countries. In all, EICTA represents more than 10,000 companies all over Europe with more than 2 million employees and over EUR 1,000 billion in revenues.

The membership of EICTA:

Company Members:
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National Trade Associations:
Austria: FEEI; **Belgium:** AGORIA; **Bulgaria**: BAIT; **Czech Republic:** ASE, SPIS; **Denmark:** ITEK, IT-Branchen; **Estonia:** ITL; **Finland:** TIF; **France:** ALLIANCE TICS, SIMAVELEC; **Germany:** BITKOM, ZVEI; **Greece:** SEPE; **Hungary:** IVSZ; **Ireland:** ICT Ireland; **Italy:** ANIE, AITech-ASSINFORM; **Latvia:** LIKTA; **Lithuania:** INFOBALT; **Malta:** ITTS; **Netherlands:** ICT-Office, FIAR; **Norway:** ABELIA, IKT Norge; **Poland:** KIGEiT, PIIT; **Slovakia:** ITAS; **Slovenia:** GZS; **Spain:** AETIC, ASIMELEC; **Sweden:** IT Företagen; **Switzerland:** SWICO, SWISSMEM; **Turkey:** ECID, TESID, TÜBISAD; **Ukraine**: IT Ukraine; **United Kingdom**: INTELLECT.