ENERGY STAR Small Network Equipment
Framework Document and Test Procedure
Comments from the European Commission

We appreciate the launch of preparation of an ENERGY STAR specification for Small Network Equipment and we look forward to working with the US EPA and the stakeholders on development of the specification.

As a general remark, we would like to inform you about the EU Code of Conduct for Broadband Equipment, which covers the same main area as the ENERGY STAR Small Network Equipment specification. We recommend that the SNE specification will be based as much as possible on the Code of Conduct, where relevant. Please see the Code of Conduct:
http://re.jrc.ec.europa.eu/energyefficiency/html/standby_initiative_broadband communication.htm

The group behind the CoC (European Commission, Member States and industry stakeholder) will meet on 12 February 2010, where the Energy Star SNE will be on the agenda. More comments may be submitted after this meeting.

Framework Document

- Preliminary List of Definitions: Network Equipment: A device whose primary function is to pass Internet Protocol traffic among various network interfaces / ports: This definition should be reconsidered because in many situations, e.g. offices, local network traffic would be the primary function.

- Designed for stationary operation: Mobile rechargeable network products e.g. mobile routers with UMTS/CDMA connection are emerging on the market. We think they should be considered at least for a second tier especially for products with also work on mains supply.

- Eligible Product Types: The list might be extended e.g. with units with UMTS/CDMA and similar connections built in and combined products with e.g. NAS (Network Attached Storage), print server and network streaming function. Even though the product primarily should be a network product, products with end-point functions should be included because the alternative might be that too many products will be excluded.

- Operational Modes – On Mode: This might need to be divided into two on modes: Low power mode during no user traffic and active on mode with user traffic.

- Operational Modes – Sleep Mode: It should be considered to include wake up possibility from network traffic assuming the unit can maintain the network connectivity. It is furthermore not clear what is meant by "Continuous function: sensor-based functions". It seems however that the protocols for SNE to enter a sleep mode or APD mode are not available as known today and therefore, a device cannot enter standby mode, and be woken again when another device demands it. Referring to the OSI layer protocol tire, the protocol is not supporting any kind of standby functionality.

- Operational Modes – APD (Auto Power Down): The automatic switching into a low power mode and to the sleep mode should be considered. E.g. there should be a short time period before switching into the low power state and a longer period into the sleep mode. This depends also on possible ability to be woken up by network traffic.

- Operational Modes – Other modes definitions: In the EU CoC, Annex B, there is an extensive definition of operation states including a low-power-state that is useful to compare with.

- Network Ecosystem: We support that the SNE can be used to monitor and manage the energy consumption of end point devices. It might be needed to reward manufacturers for including specific energy saving features e.g. through additional power allowances.

- Product development trends: The trends are higher speeds, more functionality and more always on. These trends will result in higher energy consumption, if actions are not taken.

- Power over Ethernet: PoE is only relevant for wired devices, which may see a future declining tendency. PoE should however in any case be included in the test methodology.

- Analogous technologies available for other wired or wireless network protocols: Tele network communication is a good example, because a mobile phone can enter a very low power state, from where it still can be woken up from the network for incoming calls.

- Power Management features: There might be many options for power management including possibility for scheduling on and off periods. However, important issues here include support or requirement of protocol development with functionality for allowing systems to go to sleep and to be woken up from the network.

- Implementation timing: In the EU, the effective date needs to be on the 20th day following its publication in the Official Journal of the European Union.

Test Procedure

In general, we think that the proposed test procedure contains many good elements and should be a good basis for the final test procedure. At the present stage, we have the following comments:

- Test in all modes: It seems that the test procedure focuses on active modes at different speeds, however, low power, sleep and off modes should be measured as well as time to sleep and time to low power modes.

- Test of combined products i.e. with various functionalities: It might be necessary to test products with various functionalities when two or more functionalities are active, because it could give a different picture of the energy consumption compared to summing the consumption levels for each functionality.

- Data Source: We assume that the proposed network traffic generator is a sufficiently good approximation of typical network traffic.

- Low-voltage Dc Powered: The main issue here is that the ac to dc power supply is not delivered together with the SNE, but it has impact on the measured energy consumption if the test method from the imaging equipment specification is applied here. An alternative would be to measure the dc consumption and calculate the ac consumption basing the conversion efficiency on the limit for complying with the external power supply requirements, i.e. the worst case for an Energy Star power supply.