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Sent: Friday, January 14, 2011 11:58 AM
To: batterychargers@energystar.gov
Subject: Comments of Nokia RE: Draft 1 Version 2.0 ENERGY STAR(r) Battery Charging System (BCS) specification

We hope the following input will aid in the Agency's deliberation on the Version 2.0 ENERGY STAR® Battery Charging System (BCS) specification, and we thank you for the opportunity to provide these brief comments.

In General we believe that:

- The generic usage profile proposed in the draft poorly covers the 'mobile phone' user. Our devices represents usage ranges from charging daily to charging weekly. The devices charging daily ('smart phones') are in addition fitted with ~50% larger batteries, hence there is up to a factor 10 in energy usage within the Mobile device range. The trend in western communities and similar economies, is to use device's in this category. In addition there is an upcoming market of 'tablets' which have even higher energy usage – clarification is needed to determine if these devices are to be considered as computers or mobile devices ?
- Parameters used, like charging time depends on both charger, the selected battery and to some extent the used regulation circuitry in the mobile device itself. Picking this parameter makes handling very difficult for the mobile vendor as it would appear that each combination (charger, device & battery) would need to apply for the energy star. Further clarification or discussion on this point would be useful. Additionally it would make it impossible to handle accessory sale of chargers. (example: X chargers times Y batteries times Z device-types = very high number)
- In order not to impose certification parameters in contradiction to current market trends, **we would rather acknowledge the intent by imposing the limits to the chargers idle consumption.** This should be targeted to allow 150 mW or less no-load chargers and not put limits to the consumption of the device itself. We believe that this proposal would solve the accessory problem and not indirectly limit the size of the battery in the device.

Additional Technical concerns/issues with the Current DRAFT:

- It is our experience that the charging itself is more efficient the longer it takes, this is due to the fact that part of the losses arise from resistance in wires, circuit board and battery. As the power loss follows ($P=R \cdot I^2$ ohmic losses), loss is generated from the magnitude of the current. However the user would be highly detracted by excessive charging times and the device would not operate as an emergency call device if rendered inoperable due to inadequate charger power. Therefore we feel that it is not in the interest of public safety and usage to implement limitations that impact the charger power rating.

- Taking emphasis in a 'smart phone' type of device with 1 charge per day, the energy split is as follows: $1.5\text{Ah} \times 3.7\text{V} = 5.6\text{ Wh}$ (battery energy). The total efficiency loss arise from the ohmic losses, charger regulation and device regulation (each efficient to ~85%) – i.e. the loss is ranging from 2-3 Wh due to charging. There is very little to gain in optimization in this aspect without increasing component count and general use of raw material especially copper. We feel that imposed increase of raw material use, would have negative environmental impacts.
- Assuming the no-load consumption (idle-power) of the charger would be 300 mW for 22 hours (2 hours charging – 22 hours no-load), it would create $0.3\text{W} \times 22\text{hours} = 6,6\text{ Wh}$ loss (should the charger stay plugged in). Reducing this to 150 mW (or even 30 mW) holds much more potential than pursuing the loss during charging. **We would therefore propose the EPA energy star to be focused on the charger idle power.**
- Lastly, we appreciate the charging system approach of EPA, however we would recommend that only chargers with fixed cables be granted by the EPA energy star. This is rooted in our position that charging using laptops/desktops as power supplies should not be encouraged as we see this charging method as extremely energy wasting – in particular if the laptop/desktop left powered up only for that purpose.

Thank you again for your consideration of these suggestions. We look forward to working with you as the process continues to move forward.

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