Consumer Electronics Association
1919 South Eads Street
Arlington, VA
22202 USA
(866) 858-1555 toll free
(703) 907-7600 main
(703) 907-7601 fax
www.CE.org

October 21, 2008

Ms. Jackalyne Pfannenstiel
Chairman and Associate Member, Efficiency Committee

Mr. Arthur Rosenfeld
Commissioner and Presiding Member, Efficiency Committee

California Energy Commission
1516 Ninth Street, MS 25
Sacramento, CA 95814-5512

Subject: **Docket Test Procedure for Battery Charger Systems;**
2008 Rulemaking on Appliance Efficiency Regulations;
Docket No. 08-AAER-1B

Dear Ms. Pfannenstiel and Mr. Rosenfeld:

The Consumer Electronics Association (CEA) submits the following comments in response to the California Energy Commission's consideration of proposed test procedure for battery charger systems ("Energy Efficiency Battery Charger System Test Procedure" – Version 2.1.4, August 1, 2008).

I. Developing test procedures via accredited industry standards organizations would save time and money.

CEA continues to urge the California Energy Commission to recognize and utilize the industry standards-setting process for the development of standards relevant to energy efficiency policy. Accredited industry standards development organizations are best structured to address and facilitate the development of standard test procedures. The industry standards process offers several advantages in that it is market-oriented, benefits by strong industry participation, is credible and flexible, is open to all stakeholders, is performance neutral, and is often international in scope –which itself facilitates trade and lowers costs. As the Commission's consultants have explained, it has taken them more than three years to develop a test procedure for battery chargers for the State of California. We note that industry standards are typically developed in much shorter periods of time. By using established and accredited standards development organizations to develop standard test procedures, the Energy Commission, the State, and California-based utilities could save time and money.

II. The Commission should coordinate and harmonize its activities on battery chargers with those of the U.S. Department of Energy.

As the Energy Commission considers adoption of the proposed battery charger test procedure, and presumably a battery charger efficiency standard eventually to follow, we urge the Commission to coordinate and harmonize its activities with those of the U.S. Department of Energy, which is presently in the midst of a rulemaking related to battery chargers and external power supplies. Such coordination and harmonization not only makes more efficient use of limited public and private sector resources, but it also facilitates outcomes that adequately and appropriately addresses energy efficiency at a national market level.

III. A device that is considered to be a "Class A External Power Supply" under the federal Energy Independence and Security Act of 2007 should not subject to an additional battery charger test procedure and regulation.

As stated in its previous comments to the Commission, CEA believes it is neither reasonable nor productive for the Commission to impose an additional battery charger system test procedure, or regulation, on any device that is already considered to be a "Class A External Power Supply" under EISA 2007. The draft battery charger test procedure proposed by PG&E and Ecos, as well as previous comments by the Commission's consultants on this matter, suggest such a scenario. The Commission should avoid any "double jeopardy" scenarios whereby a power supply or charging device is subject to two different test procedures and two efficiency regulations.

As the Commission may recognize, the consumer electronics industry has invested significant resources in addressing the energy efficiency of external power supplies and achieving a consistent and national regulatory approach for these accessory devices. During 2005 and 2006, CEA worked with the Commission to amend the Appliance Efficiency Regulations for external power supplies given the significant marketplace, technical and economic issues that were encountered following the Commission's proposal to mandate the Energy Star program requirements for external power supplies. CEA subsequently worked with several other states to harmonize their policy approaches for external power supplies. Finally, CEA worked with Congress to achieve a national standard for the energy efficiency of EPSs as part of EISA 2007. These investments by manufacturers and achievements by industry and other external power supply stakeholders should not be negated or invalidated by a "double jeopardy" battery charger regulatory scenario.

IV. A test procedure for battery charging systems, or any regulation based on such a test procedure, should not bias one battery technology over another, nor preclude the development of new battery technologies.

CEA believes that a test procedure for battery charging systems, or any regulation based on such a test procedure, should not bias one battery technology over another, nor preclude the

development of new battery technologies. CEA strongly recommends that the test method reference battery chemistry. A statement similar to the following should be added to the test method:

> "Since battery characteristics depend on the design and the type of battery chemistry used, this test procedure shall provide the opportunity on the part of the manufacturer/supplier to self-declare the type of battery chemistry used."

V. "Power factor correction" should be addressed at the utility or system level, not at the device level.

CEA agrees with other stakeholders that measuring power factor for the purpose of regulating presumed power losses in the distribution wiring of a building or power distribution system represents an extraordinary departure from most appliance energy efficiency regulations currently in force in California. Embarking on this pathway should only be undertaken by carefully considering the impact of such a decision both in terms of public policy and technical substantiation. No real evidence has been presented as to why this measurement or limit would be necessary. Non-displacement power factor has been a topic of interest internationally with regard to the impact that power line harmonic currents may have upon the integrity of the power distribution system but not with respect to product energy efficiency. It is unclear why this test method for battery charger systems includes these measurements while the test procedures for other products regulated by the Commission have not. In addition, the method of measuring the power factor in the test procedure is inconsistent with well-established international test standards for measuring non-displacement power factor loads.

VI. Based on member feedback, CEA suggests several additional edits to the draft test procedure.

Role of the manufacturer/supplier:

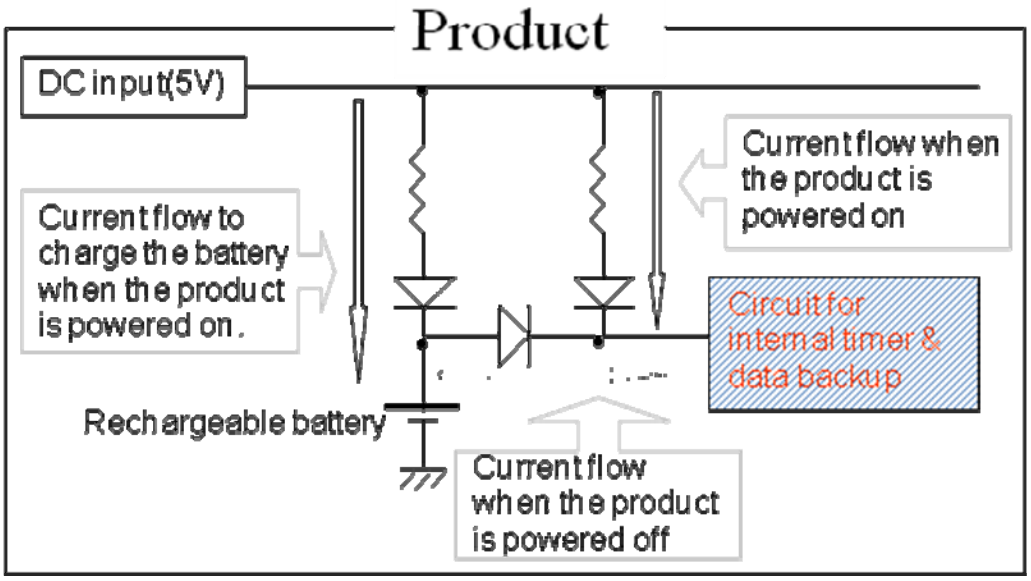
Under the "General Scope" section of the draft test procedure, the following sentence should be added: "The manufacturer/supplier of the cell, and/or pack, and/or host and/or adaptor shall be responsible for running the test herein."

Back-up battery charger systems:

"Back-up" battery charger systems should be excluded from the General Scope by adding item 6 to the General Scope, as follows:

> "This test procedure does not provide for the testing of 'back up battery charger systems.' Such systems, which may provide back-up power to internal timers and may store device setup data, charge when a product operates and provide power after a product is switched off, as illustrated below."

Example



Battery charger system setup requirements:

In the "General Setup" section of the "Battery Charger System Setup Requirements" of the test procedure, members are concerned about the following language:

> "…the battery charger system shall be prepared and set up in accordance with the manufacturer's instruction, except where those instructions conflict with the requirements of this test procedure."

Such language raises concerns since the test may recommend a set up that is not approved by the manufacturer. It is suggested that the language above be rewritten as follows:

> "As a matter of test personnel safety, the battery charger system shall be prepared and set up in accordance with the manufacturer's instruction. If the manufacturer's instruction for setup would cause a conflict with this test procedure, please contact the manufacturer with questions and concerns. Should the manufacturer not be in a position to provide amended setup procedures, please do not conduct these tests."

Access to the battery for discharge test:

In the "Access to the Battery for Discharge Test" section of the test procedure, the text states that "manufacturer's instructions for disassembly shall be followed, except those instructions that: a) lead to any alteration of the battery charger circuitry or function or b) that contradict requirements of this test procedure." This causes concern since the test may recommend a

setup that is not approved by the manufacturer and may be an issue for test personnel safety. It is suggested that this language be rewritten as follows:

> "The manufacturer's instructions for disassembly shall be followed, except those instructions that lead to any alteration of the battery charger circuitry of function. Should the manufacturer's instructions contradict the requirements of this test procedure, please contact the manufacturer with questions and concerns. As a matter of test personnel safety, should the manufacturer not be in a position to provide amended setup procedures, please do not conduct these tests."

Also in the "Access to the Battery for Discharge Test" section, there is language (on page 16) stating that the energy consumed by protective circuitry is not to be measured. Does this mean that the protective circuitry is not considered in energy efficiency? As drafted, this language appears to reject a design with protective circuitry. It is suggested that the reference to protective circuitry be rewritten as follows:

> "The energy consumed by overprotection circuitry is to be measured and documented. Should no overprotection circuitry be included in the design, that fact shall be noted."

In this same section on page 16, the text of the draft test procedure states that the "Battery Discharge Energy and the Charging and Maintenance Mode Efficiency shall be reported as 'zero'" if the technician is (a) unable to access the battery terminals, (b) determines that access to the battery terminals destroys the charger functionality, or (c) is unable to draw current from the battery. It is suggested that this language be rewritten as follows:

> "The technician shall contact the manufacturer and express his concern if he is unable to access the battery terminals, determine that access to the battery terminals destroys the charger functionality, or is unable to draw current from the battery. Should no remediation be possible, the test shall be stopped."

In the "Setup" section of the "No-Battery Mode and Off Mode Tests" portion of the draft test procedure, three categories of products are explained. The characteristics outlined under "Category 1 Products" do not easily match some of today's current systems. For example, if a portable digital media player uses a battery pack that contains both the charger and the charging circuit, and during the normal use of the product:

1. The battery pack is not disconnected from the main body of the player; and
2. The battery itself is not detachable from the battery pack (removing the battery would be difficult for the customer);

Then would such a product be "Category 1"? This should be explained.

Conflict between "No-Battery Mode" definition and "Category 3 Products" description

Based the draft test procedure definitions of "No-Battery Mode" (on page 7) and "Category 3 Products," it is unclear which power consumption should be measured for "no-battery power" as in the following laptop computer scenario:

Figure 1: Laptop categorized as a Category 3 Product with a detachable battery pack

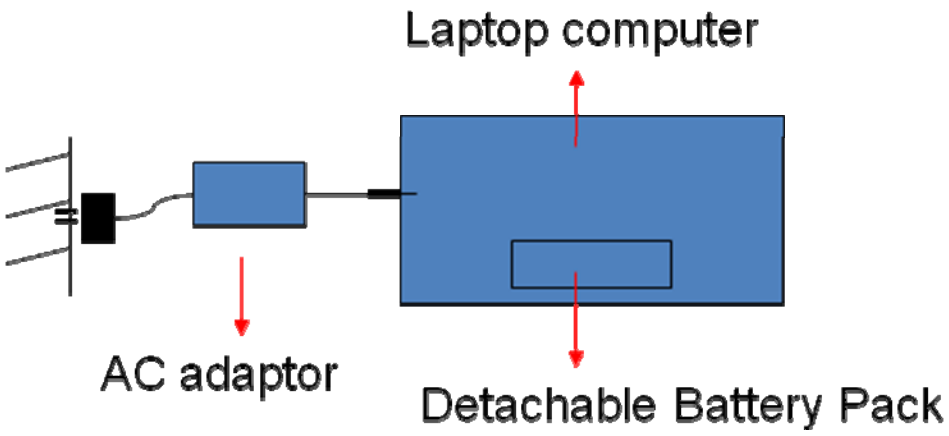


Figure 2: Detachable battery pack removed and the laptop operates in "No-Battery Mode" (i.e. "no-battery power")

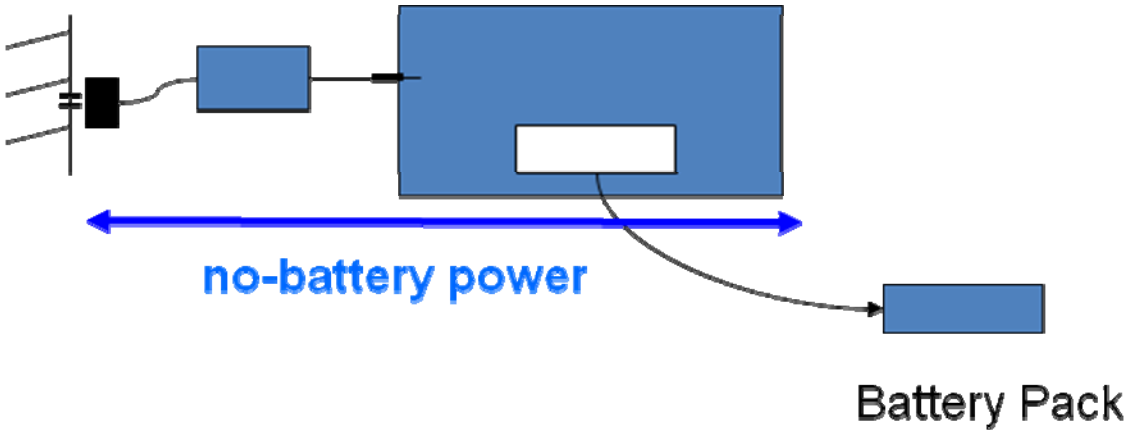


Figure 3: Laptop "Category 3 Product" in "No-Battery Mode" (i.e. "no-battery power")

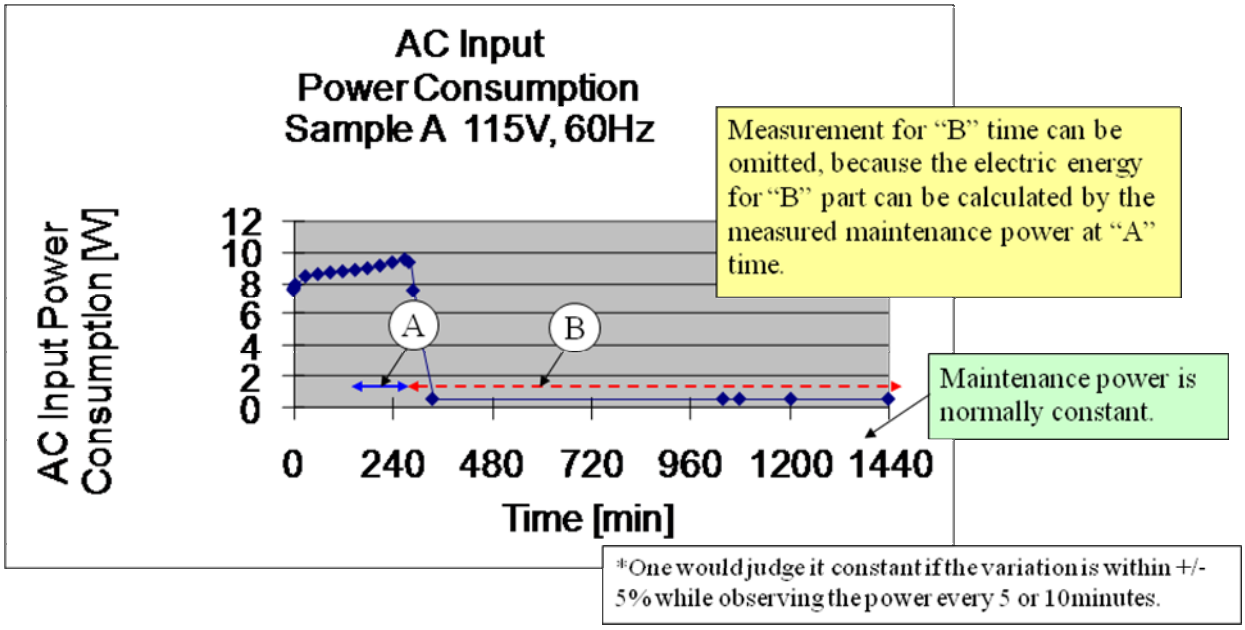
Charge Mode and Battery Maintenance Mode test

In order to save resources, reduce energy consumption and reduce testing costs, the measurement time for the "Charge Mode and the Battery Maintenance Mode Test" must be shortened. As currently drafted, the test procedure requires UUT measurement for at least 24 hours.

Based on member feedback, CEA requests that the following text be inserted as a new paragraph on page 18 following the paragraph which ends with "power over the measurement period and this result shall be used as the total energy":

> "If, during this test, the technician notices that the measured power becomes constant, the technician can stop this test and estimate the power consumption using the following formula:
>
> If the maintenance power is constant(*) for one hour or more, then the maintenance power after that period can be judged constant, and the value as calculated by the following formula can be used as the electric energy (Ea) which is consumed for 24 hours on charge and maintenance mode.
>
> Ea = "Measurement value (until stopping the measurement) of electric energy consumed on charge and maintenance mode" + "the maintenance power (average value measuring for 1 hour or more)" x "remaining time until 24 hours pass"

The following diagram illustrates a measurement example:



If the maintenance power is constant* for one hour or more, then the maintenance power after that can be judged constant, and the value as calculated by the following formula can be used as the electric energy (Ea) which is consumed for 24 hours on charge and maintenance mode.

Ea="Measurement value (until stopping the measurement) of electric energy consumed on charge and maintenance mode" + "the maintenance power (average value measuring for 1 hour or more)" x "remaining time until 24 hours pass"

The amount of time for the UUT temperature to equalize and the energy consumption to become constant should be noted in the test report.

Reference documents in the test procedure

To avoid confusion about the meaning of the introductory sentence under "References" in the test procedure (on page 3), CEA recommends adding the following sentence:

> "This list is included for informational purposes only, and a manufacturer/supplier is not required to follow the provisions of all of the following reference material to conform to this test method."

Also in the "References" section of the test procedure, the reference to IEEE 1625 should be corrected as follows:

> "IEEE Std 1625™ - 2008, revision of IEEE 1625-2004, IEEE Standard for Rechargeable Batteries for Multi-cell Mobile Computing Devices. The Institute of Electrical and Electronics Engineers, Inc., New York, NY, USA."

Thank you for the opportunity to comment on the proposed test procedure for battery charger systems, and please do not hesitate to contact us if you have any questions or need further information.

Sincerely,

Douglas Johnson
Senior Director, Technology Policy & International Affairs