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CEC Test Procedure

Battery Chargers

May 15, 2008

Test Procedure Consultation

- ▶ AHAM and PTI have participated in the EPS and BCS regulatory process since the beginning.
- ▶ Under this rulemaking BCS will be regulated for the third and/or fourth times in 5 years.
- ▶ Our interest has been in fair and accurate measurement.

Test Procedure

- ▶ AHAM and PTI have encouraged CEC and its contractors to understand the basic differences between household battery chargers and those for forklifts, wheelchairs, industrial escape lighting and golf carts.
- ▶ To date, all estimates show that the energy savings potential is heavily weighted toward industrial chargers, not appliance battery chargers.
- ▶ In addition, the largest energy saving for BCS may have already occurred.

Important Advancements

- ▶ The recent posting by CEC staff of the proposed regulations shows a significant improvement in the test procedure and regulatory framework.
 - ▶ Addition of definitions
 - ▶ Testing at 115 V
 - ▶ Excludes Class A Power Supplies from Battery Charger regulations
 - ▶ Need to better understand these changes
- ▶ Should be reflected in Ecos/PGE test procedure

Test Procedure Purpose 2008

- ▶ Some separation
- ▶ Can be accomplished in sections of test procedure
- ▶ Overall: measure the important modes and characteristics
- ▶ Not presume what the standards will be

Test Procedure 2008

- ▶ AHAM PTI Suggestions since beginning
 - ▶ Eliminate mention of EPS
 - ▶ Eliminate DC input
 - ▶ Need for error measurement
 - ▶ Associated batteries
 - ▶ Access to Batteries
 - ▶ **Safety Issue**

Test Procedure Improvements

- ▶ A few improvements can be made
 - ▶ Improve speed
 - ▶ Improve accuracy
- ▶ **Battery Capacity**
 - ▶ Improvements to accuracy
 - ▶ Avoids safety issue
 - ▶ Power factor
 - ▶ Energy formulas—presumes regulated levels

Power Factor

- ▶ Test Procedure measures power factor (pf) with the intent to set strict limits on pf
- ▶ pf is the ratio of watts to VA (apparent power)
 - ▶ Reflects higher current than power rating would predict
- ▶ Ecos's contention is that low power factor causes extensive power losses in distribution wiring
 - ▶ Losses due to effect of additional current and resistance of wiring
 - ▶ Have failed to present the technical case for its inclusion

Power Factor

- ▶ Purpose of Title 20
- ▶ The standard is intended to measure power consumption of the product not the house wiring
- ▶ Residential wiring may vary greatly in quality effecting the real losses

Power Factor - Solution

- ▶ AHAM/PTI propose to limit pf measurement to BCS with ratings greater than 700VA
- ▶ Losses for BCS's less than 700VA are insignificant
- ▶ Error rate of test standard 2%
- ▶ Contribution of appliance BCS <2%
- ▶ Appliance BCS's between 50VA and 700VA are intermittent duty, energy

Power Factor regulation

- ▶ Regulating pf in BCS - a bad idea
 - ▶ Many highly efficient power conversion technologies have poor pf
 - ▶ Example: CCFL, SMPS
 - ▶ These technologies have already been encouraged by past CEC Rulemakings
 - ▶ Limits pf without assessing the effect on total energy consumption of product
 - ▶ Especially considering short durations of use associated with many BCS's
 - ▶ Puts unfair burden on BCS design compared to other products

Formulas

- ▶ Energy Formulas do not belong in a test procedure
- ▶ Suggest inclusion in standards limit regulation

Definitions

- ▶ **Definitions**
 - ▶ AHAM PTI proposed 3 definitions
 - ▶ One has been added to proposed Staff Phase 1 Part B changes
 - ▶ Integral Battery
 - ▶ Cradle type battery charger

Thank you.

- ▶ Association of Home Appliance Manufacturers
- ▶ Power Tools Institute