

CEC Proposed Regulations of External Power Supplies

2004

Comments by AHAM



CEC Proposal on EPS

- Staff recommendation has been to include only External Power Supplies.
- EPA Energy Star restricted to EPS, today.
- New CEC definition in latest September 10 publication seeks to expand the program.
- The new CEC definition causes several problems.

What is an External Power Supply?



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1. Battery chargers are different from EPS.

- They are not purchased as commodities, but custom designed for each application.
- CEC regulation treats them as a separate entity. Not true.

What is a Battery Charger?



The Battery Charger has different components that are included in different places in the product.

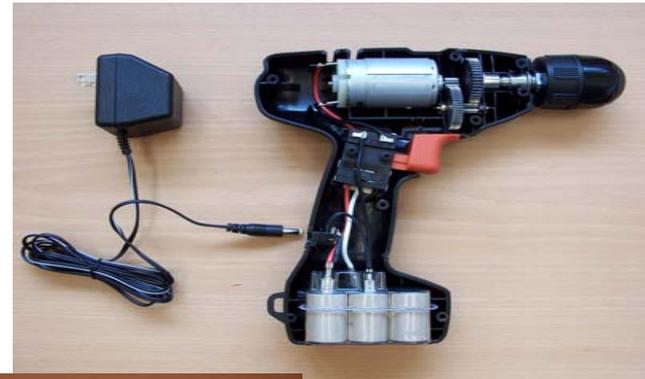
The Adaptor portion may contains special V-I characteristics, mode switching, and regulation. It must be inherently limited.

What is a Battery Charger?



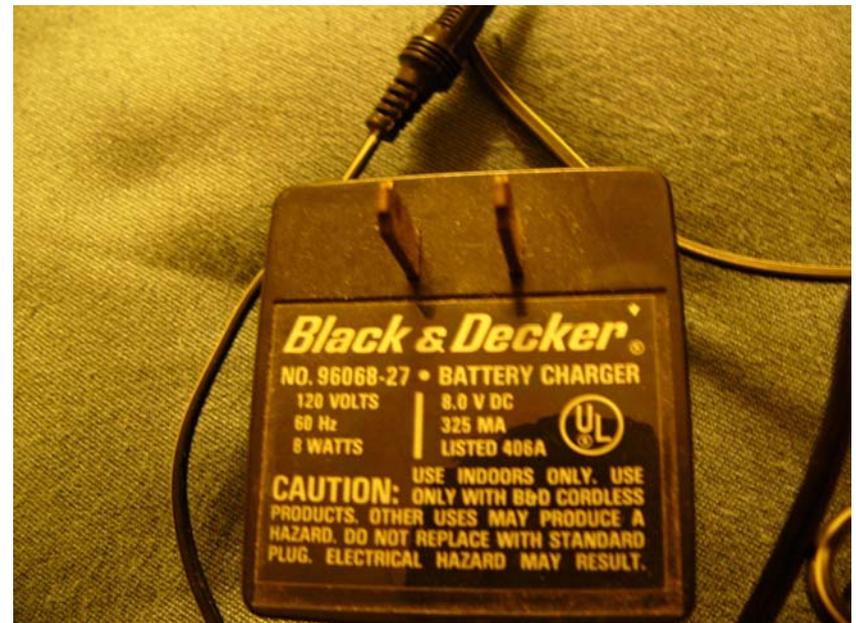
- BC adapters may be attached in various ways

- Plugged to product (integral pack tools)
- Plugged to detachable pack battery
- Hardwired to product charger base
- Hardwired to “cup”

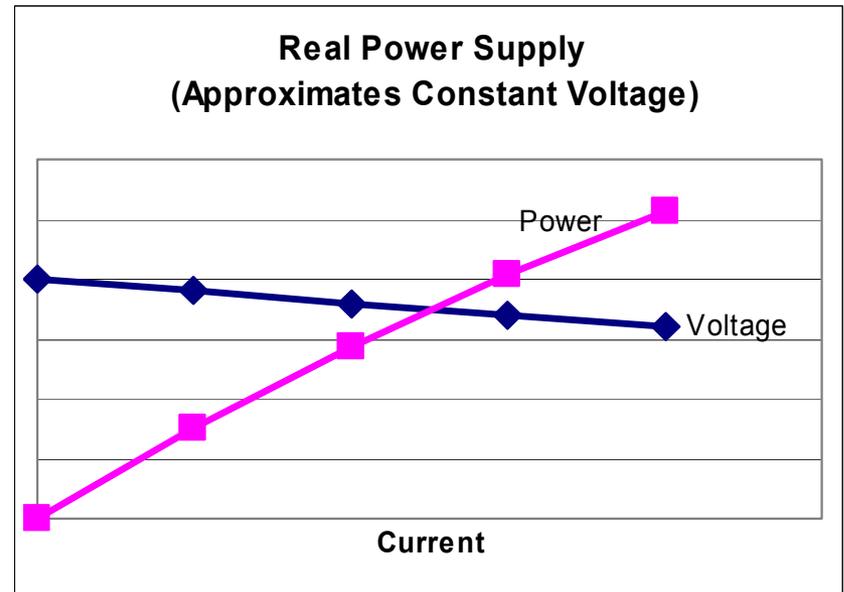
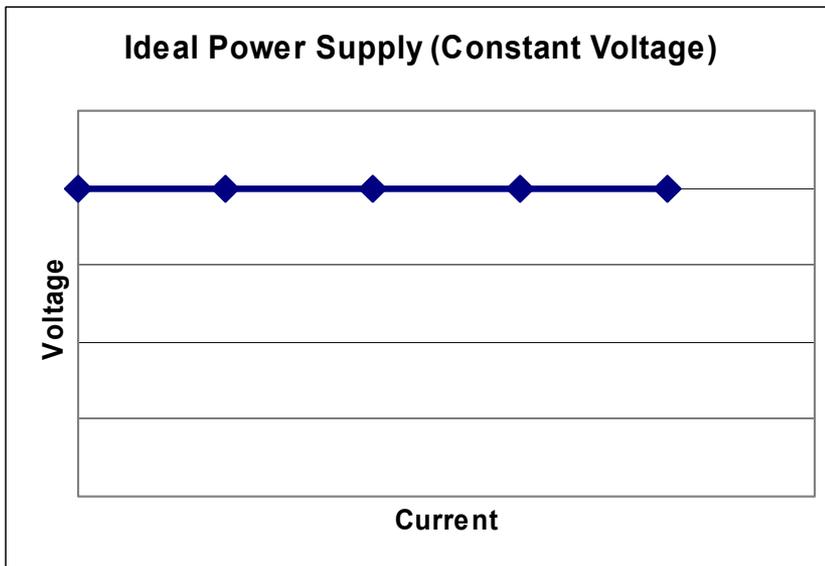


2. Test Procedure Problems

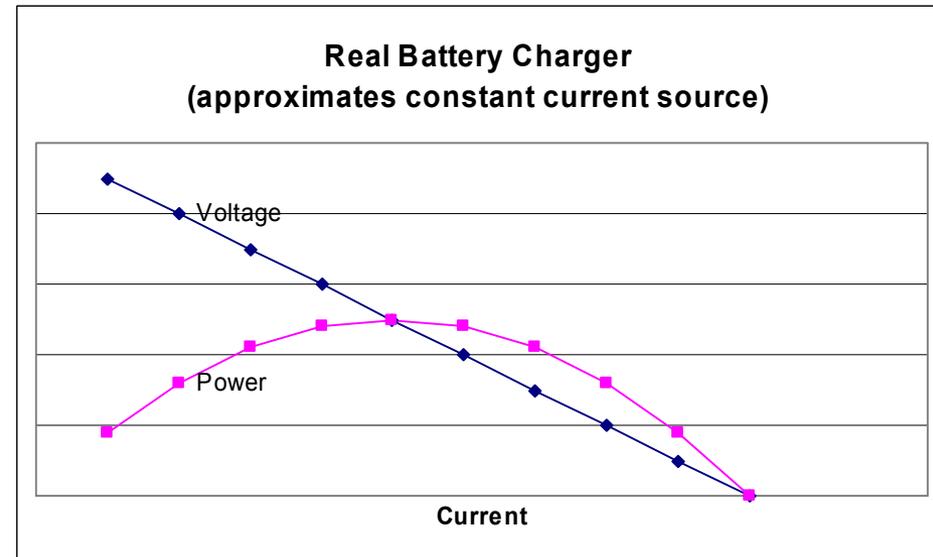
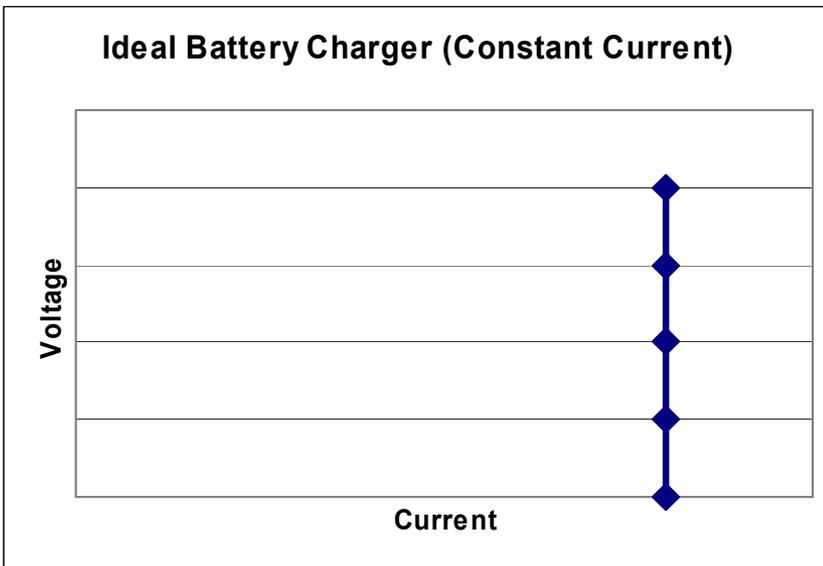
- Test procedure calls for relating watts in to watts out.
- Many appliance BC's are marked as whole unit, using VDC, but output of adaptor is VAC.
 - Will result in error of measurement or limit value



V-I Characteristics of EPS



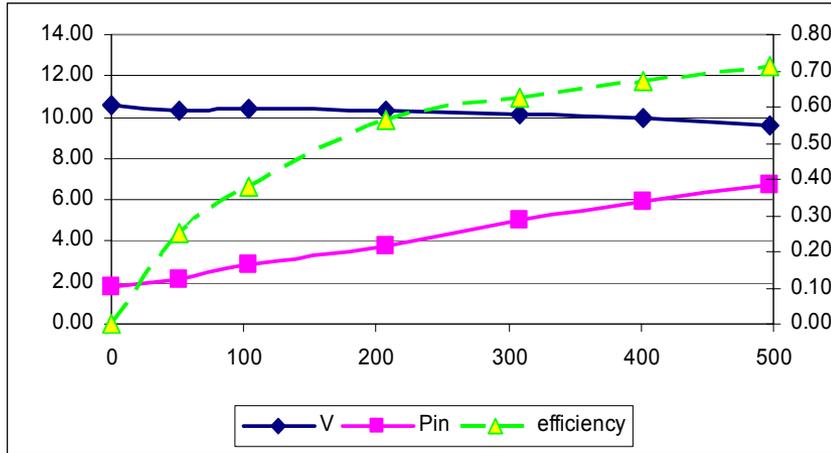
V-I Characteristics of Battery Chargers



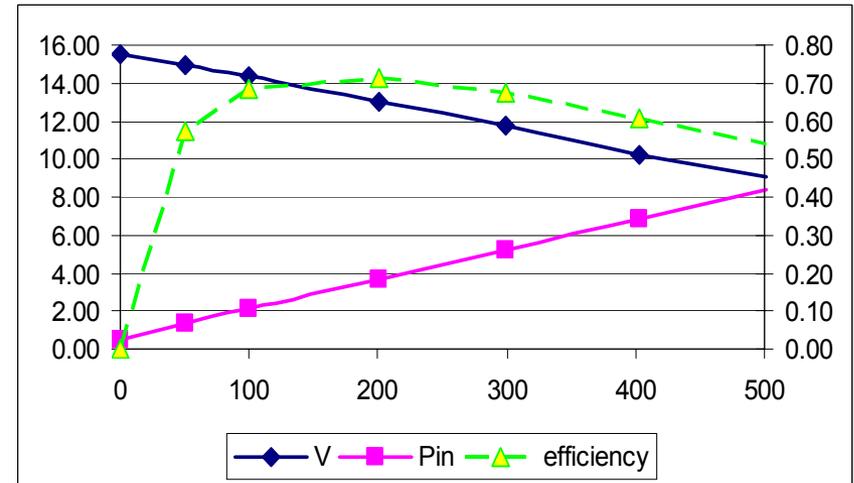
3. Test Procedure on appliance BC's measures wrong thing

- Appliance BC's must be inherently limited for safety and performance.

EPS vs. BC(NiCd)



EPS



BC

4. Current definition is confusing?



“This is the lead acid battery charger for Black & Decker’s cordless weed trimmer. This would qualify for the draft 2 spec as written, because the power supply connects to a separate device that in turn connects to the battery (though there’s no extra circuitry in the base unit). Note that this power supply contains some minimal additional functionality in the form of indicator lights.” Quote from Ecos Consulting

120VAC 60Hz | Output
7.5W | 13VDC 260mA
E180349
4H41
C UL US LISTED

MODEL: 371415-11 CLASS 2 BATTERY CHARGER

CAUTION • Risk of electric shock. Dry location use only. Use only with Black & Decker battery #242082 or #243215. Other uses may produce a hazard. Do not replace this plug assembly as risk of fire or electric shock may result. For safe operation read instruction manual.

AVERTISSEMENT: Pour s'assurer du fonctionnement sur, lire le guide d'utilisation.

Black & Decker(US) Inc. Towson, MD 21286 Made in China

Ready Charging



The same products could be in and out



Not Covered

"This is Black & Decker's most popular charger for its low-end cordless tools and household products. This product is not covered because the battery connects directly to the power supply. The VersaPak batteries are available in silver (nicad) or gold (nickel metal hydride) versions. They are 3.6 volts apiece, so some products utilize two of them."



Covered

"This is the inside of Black & Decker's new double VersaPak charger. Instead of plugging directly into the wall, this unit employs a larger AC-AC transformer in its own housing, which is then connected to a separate circuit board inside the charger. This circuit board is identical to the other one, but with 2 resistors and 2 LED indicators. This product would qualify under the Draft 2 spec (if AC-AC units are included), asking the technician to cut the cord where it enters the charger and measure the efficiency of AC-AC transformer only."

Covered?



In?



Out?

Covered?

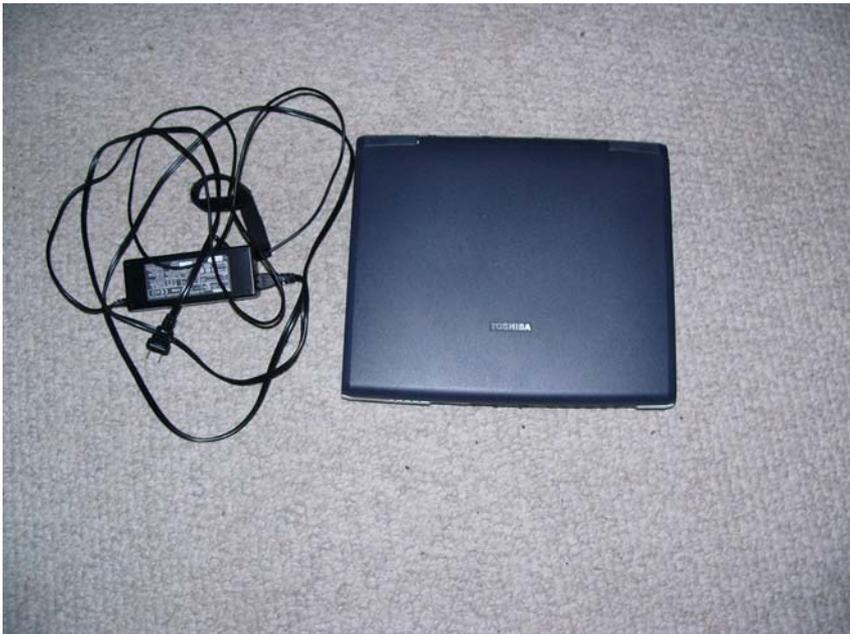


In?



Out?

5. Test procedure measures No Load.



Fine for EPS

- For some rechargeable products, the CEC No Load Measurement for Battery Chargers
 - Inappropriate
 - How long do battery rechargeable appliances have a charger operating in no-load?



6. CEC EPS Regulation, when applied to BC's, may not save energy

- Products, such as Cordless Vacuum, spend virtually no time out of charger base
 - Improving no-load power will have no effect
- Many adapters may operate at only one load point
 - Improving efficiency at other loads will have no effect
- Inherent limited designs are required
 - Move impedance out of adapter
 - Will not improve efficiency
- Appliance BC's are very tiny amount of total adaptor use.

7. We must not sacrifice safety.

- BC manufacturers must be concerned with safety of batteries
- UL safety standards address power source safety only
- Several recalls regarding BC's
- There have also been recalls of batteries (mostly Li-ion)

Safety Issues?

“October 6, 2004

CPSC, XXX Inc. Announce Recall of AC Adapters for Notebook Computers

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission announces the following recall in voluntary cooperation with the firm below. Consumers should stop using recalled products immediately unless otherwise instructed.

Name of product: AC adapters used with notebook personal computers

Units: About 990,000

Manufacturer: XXXX, of Taipei, Taiwan

Importer/Distributor: XXXX Inc., of XXX

Hazard: The adapters can overheat, posing a risk of fire and electrical shock hazards to consumers.”

8. Process

- CEC expanded definition after May hearing
 - Program was always announced as covering only external power supplies
 - May 2004 CEC Proposed Amendments stated AC to DC External Power Supplies. No mention of Battery Chargers.
 - September 10, 2004 CEC Proposal extends to AC to AC and to Battery Chargers.

What can industry do?

- No technology transfer
- No appreciable gain to consumer
- Costs are higher
- No direct substitute without additional circuitry, additional costs
- Costs shown in Staff Report may be accurate for EPS, but not for BC's
- Poor payback on BC's way it is written

What can we do?

- Limit to EPS only.
 - Not apply to battery chargers or battery chargers that temporarily act as a power supply.
 - CEC should limit scope and use same definition as EPA Energy Star program

Allow industries to work on correct measurement of energy.

- AHAM and PTI have agreed to work toward development of an accurate test procedure by spring '05.
- Focus on excess consumption of battery charger, not efficiency of adapter
 - Consider chemistry, capacity, application, etc.
 - Consider patterns of use
- CEC is free to pursue regulation

Conclusion

- Leave definition as it was proposed in May 2004.
- Or, exclude constant current battery chargers for appliances until appropriate, realistic, and accurate test procedure can be developed.