



**To:** Mehernaz Polad, ICF Consulting  
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**From:** The Power Sources Manufacturers Association Energy Committee

**Date:** August 22, 2007

**Re:** ENERGY STAR set top box specification

During the past few years, the PSMA has followed the progress of reducing energy waste in set-top boxes (STBs) by attending meetings and providing technical information regarding the power converter portions of the boxes. As the power requirements rose with the increase in STB functions, such as the inclusion of DVRs, the power converters have had to become more efficient in order to minimize internal heating. Today, power converter efficiencies in modern set top boxes have improved dramatically, minimizing the energy waste and temperature issues that plagued earlier products.

It appears that the main issue in today's STBs is not that they are inefficient while in the active mode, but that due to activities in the overall system and provider-user interface, the units spend little, if any, time in a low-power or standby state. Many electronic products, including desktop computers, DVRs and the like, operate at different power levels depending on the use of the product. When the product is idle (typically called "standby" mode), only waiting for a turn-on signal from a wireless remote control, the power consumption can be very low---usually below 1 watt. In the mode of highest activity (typically called active-on mode), where the product is processing data, running hard drives, etc., the power consumption is at a much higher level, ranging in power from 10 or 20 percent of maximum, all the way to the maximum power of the device, which may be 100 watts or more. The power supply industry has realized the need for efficient operation over the entire range, from standby to active mode, and has responded with new technology to accomplish this. Today, the state-of-the-art power supplies in consumer electronic products can achieve **efficiencies of 85% or better, from 20% to 100% load (full power)**, allowing efficient operation in all required modes of operation of the STB. In addition, power factor correction circuitry has become more efficient and cost-effective, so that the requirement for good power factor (better than 0.9 in the case of 80 PLUS desktop computer

power supplies) can be met where needed. This is a mandatory requirement in most parts of the world for products with input power of greater than 75 watts.

For STBs, power conversion technology is readily available to provide low standby power, high active-mode efficiency (which is present in most modern set-top boxes already), and power factor correction where needed. The power electronics industry is currently delivering efficient, cost-effective power converters, reference designs and components for these products, and is constantly improving them. To reduce the power consumed by these products, we believe STBs must be allowed to spend more time in the low-power and standby states, and the PSMA welcomes the opportunity to work with the STB and service provider industry to take advantage of these capabilities.

Respectfully submitted,  
The PSMA Energy Committee

(signed)  
Tim Cassidy, Co-Chair  
Dusty Becker, Co-Chair