

Power-Supply Efficiency Specs Align — But Slowly

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With energy-efficiency standards around the globe tightening, designers of external power supplies (EPS) should stay abreast of the latest changes. ENERGY STAR recently published version 2.0 of its efficiency specifications for EPS. The revised specs substantially raise the requirement for operational efficiency, while lowering the allowance for standby power consumption. These specs will take effect in less than six months, beginning in November of this year.

The ENERGY STAR program applies to many “energy using” products such as home appliances, office equipment and lighting. Now, with its applicability to EPS (sometimes termed “wall warts” or even “energy vampires” because of the amount of energy they suck out of a system), the program touches an even wider range of products and applications.

The ENERGY STAR program is voluntary in that no sanctions or penalties are imposed on noncompliant products. However, the federal government is required to choose energy-efficient products if available, and an increasing number of consumers are making ENERGY STAR a factor in their purchasing decisions.

From a designer’s viewpoint, there’s a preference for the various national and international mandatory and voluntary efficiency regulations to align with each other. Harmonized standards enable simplicity in manufacturing and inventory management.

Yet the political will to enact environmental regulation ebbs and flows asynchronously across the globe, causing the standards/specifications and the applications included in the standards/specifications to change. The situation with respect to EPS has been in constant change since 2004. And it appears likely that these standards will remain in flux for a while to come, before reaching complete harmony.

So what challenges do the new ENERGY STAR EPS specs pose to designers?

ENERGY STAR EPS version 2.0 requires tighter active-mode efficiency and lower no-load consumption than any other specification or standard. For example, to meet the new specification, a 2.5-W (5-V, 0.5-A) EPS must deliver a minimum efficiency of 68%. That’s up from the 57% required by the current ENERGY STAR specification (version 1.1) and higher than the 58% mandated by the new U.S. Energy Independence and Security Act of 2007 (EISA),

which basically adopted the California Energy Commission’s mandatory EPS standard.

Meanwhile, no-load power consumption should be under 300 mW with the new specification, compared to 500 mW with version 1.1 and the EISA. Additionally, if an EPS is rated for use at an input power of 100 W or above, it also must have a true power factor of 0.9 or greater at 100% of rated load when tested with an input of 115 Vac at 60 Hz.

Besides the tightening of its current active mode and the no-load performance, the new specification also introduces separate efficiency specs for a new category of low-voltage/high-current EPS not currently found in other EPS specifications/standards.



Even so, when examining the changing EPS efficiency specification landscape, the desire for harmonization is still evident. There is an alignment occurring around voluntary and mandatory camps. The mandatory EISA and the European Union’s mandatory EcoDesign Directive for EPSs (still under consideration by the EU but expected to be approved later this year) are aligning. And on the voluntary side, the European Union’s Code of Conduct for EPS has stated a desire to mirror ENERGY STAR’s EPS version 2.0.

While tougher voluntary programs provide a vehicle for suppliers to promote their greenest products, momentum seems to be building toward mandatory standards. Along with providing significant energy savings quickly, mandatory standards also will level the playing field for all suppliers by eliminating uncertainty about how the various submarkets will deal with the voluntary standards. **PETech**

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