

SSL Postings

The 2012 edition of LIGHTFAIR International was held last week in Las Vegas, and since the U.S. Department of Energy's (DOE) SSL team was there staffing our booth in support of our SSL educational efforts, we thought we'd share some observations with you. For starters, LED products, which have become increasingly dominant at LIGHTFAIR over the past few years, were even more prevalent than they were in 2011 – to the point where you actually had to look hard to find any other kind of product on display. One exhibitor, who was selling ballasts, even had a banner that said "*Not* LEDs," in order to stand out from the crowd. So there doesn't seem to be much resistance any more to adopting LEDs in products; rather, it's become more a question of optimizing their use.

We were really impressed by the number of sophisticated SSL product refinements that focused on the things users care about most, beyond energy efficiency. There were fewer products with genuinely new "knock-your-socks-off" designs, but it was evident that manufacturers are becoming more sophisticated at designing fixtures to take advantage of the unique characteristics of LEDs. For example, there were high-efficiency reflectors to maximize the amount of light emitted, as well as innovative ways to manage heat – which often made the replacement lamp products look more attractive. There were also clever optics to eliminate glare and avoid the "dot" effect that results from visible LED arrays – not by merely putting the light farther up the can, but by making use of indirect illumination, for example.

In addition, the color quality of the LED products overall was noticeably better this year than in the past, with few if any "ghastly" tones – and a fair number of products that actually grew warmer in color temperature as they dimmed, which should please users. What's more, manufacturers are becoming increasingly conversant with color metrics, as evidenced by the large number of products boasting R₉ values.

Another thing that struck us at LIGHTFAIR was the wide range of LED replacement products, including a number of replacements for 100W incandescent lamps. Some of these 100W replacements looked pretty good, while others seemed too large to fit into existing fixtures – understandable, considering the added heat-management burden at that light output. Few of the 100W replacement products appear to be on the market yet; most were earmarked to come out later this year, in response to the changes stipulated in the Energy Independence and Security Act of 2007. Their designs – and costs – are sure to improve, just as has happened with the 60W replacements.

There was a decided emphasis on controls at LIGHTFAIR, and a few were even built right into the lamp. Because of their "instant on" ability, LEDs are especially suited to controls, which can significantly increase lighting efficiency by sensing such things as motion and light. Quite a few of the controls we saw were wireless.

As for the efficacy of the LED products we saw, it improved somewhat over last year but not by leaps and bounds, as manufacturers seemed to be focused more on bringing down costs and fine-tuning their products in other ways – some of which required efficacy tradeoffs. Still, there were a number of LED products with efficacies over 100 lm/W, and the Best in Class winners of this year's [Next Generation Luminaires™](#) SSL Design Competition – which were announced at LIGHTFAIR – averaged about 80 lm/W. So although some of the new LED products show improvements in various performance aspects at the expense of efficacy, the best are able to do both.

On the OLED front, we didn't see that many new products, and what products we saw were still primarily decorative. But it was encouraging to see that OLEDs are continuing to make steady progress – some have achieved respectable efficacies of 60 lm/W, for example. The next step is to bring the cost down to where these products can compete, which hopefully will happen within the next few years.

As usual, DOE's booth at LIGHTFAIR was a popular stop, and our SSL seminars were always full. We were especially gratified to win a Best Booth award in the 600- to 800-feet category this year. The judges cited the educational value of our display and may have been especially impressed that, unlike the majority of the other exhibitors, we weren't selling anything except knowledge, and anyone could afford our "price" – which was simply an interest in learning the facts about solid-state lighting.

As always, if you have questions or comments, you can reach us at postings@lightingfacts.com.