

## Press Information

### NEW LUXEON REBEL LEDS SET BENCHMARKS FOR ILLUMINATION APPLICATION EFFICACY AND QUALITY OF LIGHT

#### *White binning distribution shrinks and improves supply chain security*

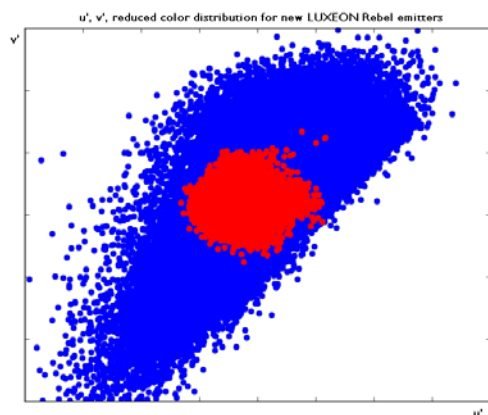
SAN JOSE, CA — Philips Lumileds announced the release of two new LUXEON Rebel LEDs with correlated color temperatures (CCTs) of 2700K and 3000K that expand the company’s portfolio for indoor illumination applications in hotels, shops, restaurants, and homes. The new emitters use the latest thin film flip chip (TFFC) and proprietary Lumiramic phosphor technologies. At the high operating temperatures found in applications like recessed lamps, the new emitters set efficacy benchmarks. The implementation of Lumiramic phosphor technology is reducing the white binning space, advancing the company’s drive to free customers from white color binning, provides superior color uniformity and raises the standard for quality of light.

#### New LUXEON Rebel Emitter Highlights

- *Typical efficacy of 80 lumens per watt and up to 95 lumens per watt at 350 mA and 3000K CCT*
- *Consistent efficacy across the typical operating temperature range*
- *Specified CRI—typical 85*
- *Industry’s smallest and most consistent, white binning space*
- *Only power LED with specified color over angle performance*
- *Superior light output performance at application conditions*

#### Shrinking White Color Distribution by a Factor of 4

For a decade, white binning has complicated luminaire design. Philips Lumileds is using Lumiramic phosphor technology to dramatically reduce the white binning space. With over 80% of the emitter production falling within a 3 MacAdam ellipse area within the ANSI bin space, luminaire design is simplified, unit-to-unit consistency is reality, and the supply chain is more certain and reliable.

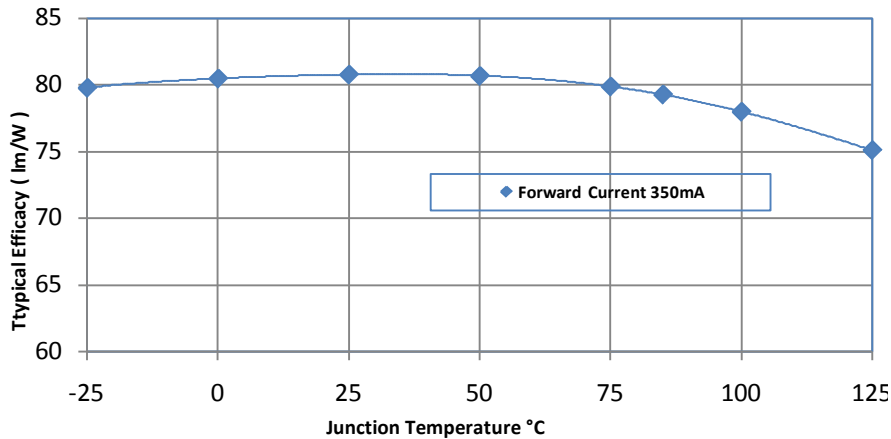


Area in red indicates distribution of 150,000 LUXEON Rebel LEDs using Lumiramic phosphor technology. Area in blue is a standard distribution of 150,000 white LEDs.

“We continue to lead the LED industry transition from semiconductor manufacturer to lighting industry partner,” said Steve Barlow, Executive VP of Sales and Marketing. “The lighting industry has spoken clearly and we’ve listened: it wants an end to binning, confidence in application performance, and a certain and dependable supply chain. These are elements that we will continue to address with innovation and solutions that improve application performance.”

### Efficacy at high temperature application operating conditions

Stable efficacy at virtually all temperatures and superior efficacy at actual operating conditions are hallmarks of the new LUXEON Rebel emitters. While LEDs are typically tested at 25°C, in applications like down lights and retrofit lamps, the internal temperature will be much higher and may be as high as 80°C-100°C. While most LEDs would have significant light output and efficacy losses at these temperatures, the new LUXEON Rebel emitters maintain more than 90% of their light and more than 95% of their datasheet efficacy— even at junction temperature of 85°C.



### Specified color rendering and the smallest possible color over angle variation

Color rendering is also improved by the application of Lumiramic phosphor plates and is now being specified with typical CRI of 85 for both the 2700K and 3000K CCT emitters. Illumination of retail goods, food products and skin tones are all very good at this level and peoples’ perception of the light is positive and confident.

Part Number	CCT	Min CRI	Typical CRI	Typical Flux	Typical Efficacy
LXM8-PW27	2700K	80	85	80 lumens	76 lm/w
LXM8-PW30	3000K	80	85	85 lumens	81 lm/w

Most LEDs display inconsistent color off the center viewing axis because the blue photons pass through varying thicknesses of phosphor before exiting the LED and therefore have different color qualities. This is particularly problematic in linear or wall



wash applications so prevalent in the hospitality industry. To provide dependable, consistent color and tint at a wide range of viewing angles, Philips Lumileds has implemented a unique process in conjunction with its Lumiramic phosphor that allows decreased variance in color over angle. This breakthrough not only contributes to overall color quality, it delivers consistent, repeatable results so that lighting designers can confidently design for the most demanding applications.

### **Availability**

The new 2700K and 3000K CCT LUXEON Rebel emitters are available now in evaluation and prototyping quantities directly from Future Lighting Solutions' regional marketing centers. High volume production quantities will be available in August 2010. For additional information please contact either Future Lighting Solutions or Philips Lumileds. Additional documentation including updated product briefs and data sheets are available at [www.philipslumileds.com](http://www.philipslumileds.com) and [www.futurelightingsolutions.com](http://www.futurelightingsolutions.com).

For more information contact:

Steve Landau  
Director of Marketing Communications  
Philips Lumileds  
+1 408 964 2695  
[Steve.Landau@philips.com](mailto:Steve.Landau@philips.com)

### **About Philips Lumileds**

Philips Lumileds is a leading provider of power LEDs for illumination solutions. The company's leading light output, efficacy and thermal management are direct results of the ongoing commitment to advancing solid-state lighting technology and enabling lighting solutions that are more environmentally friendly, help reduce CO<sub>2</sub> emissions and reduce the need for power plant expansion. Philips Lumileds' LUXEON LEDs are enabling new solutions for shop, outdoor, office, school, and home lighting applications.

### **About Royal Philips Electronics**

Royal Philips Electronics of the Netherlands (NYSE: PHG, AEX: PHI) is a diversified health and well-being company, focused on improving people's lives through timely innovations. As a world leader in healthcare, lifestyle and lighting, Philips integrates technologies and design into people-centric solutions, based on fundamental customer insights and the brand promise of "sense and simplicity". Headquartered in the Netherlands, Philips employs more than 116,000 employees in more than 60 countries worldwide. With sales of EUR 23 billion in 2009, the company is a market leader in cardiac care, acute care and home healthcare, energy efficient lighting solutions and new lighting applications, as well as lifestyle products for personal well-being and pleasure with strong leadership positions in flat TV, male shaving and grooming, portable entertainment and oral healthcare. News from Philips is located at [www.philips.com/newscenter](http://www.philips.com/newscenter).

