

## Set in the right light

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Impressive lighting effects can be achieved with the Mobilight 3, the portable wireless lighting system. Credit: APE LABS Lichtprodukte GmbH

Lighting plays a big role at events presenting new products, on television shows, and at concerts. Mobilight, a portable and wireless system, offers a wide range of options. And researchers have now made it even better.

There's a lot of truth to the expression "in the right [light](#)", because lighting is often the decisive element in setting the stage to best effect. Whether it involves unveiling a new car at a trade show or presenting a

celebrity on a television show, the lighting has to be just right. While [trade show](#) halls and television studios are well equipped, things can be more challenging in outdoor situations. This is where the Mobilight mobile module comes in. Developed by the employees of APE LABS Lichtprodukte GmbH in Würzburg, the system's individual lighting modules are battery-operated and wireless. To create the appropriate atmosphere, the individual LED devices coordinate lighting brightness and color selection over the air, at 2.4 Ghz.

But APE LABS was not entirely satisfied with the first generation of Mobilight. The mix of colors did not entirely achieve the desired effect, as the color was not evenly distributed over the illuminated surfaces. APE LABS employees also saw room for improvement when it came to spotlight size. Moreover, the lens towered about 20 centimeters above the device and was held by long screws. "Our aim was to make the Mobilight smaller and more compact, the illuminated surface larger and the light more even. In addition, we wanted to create a single module that could generate three rays of light rather than just one," says Julius Schrenk, the founder of APE LABS.

## **Compact optical components**

The small company, which counted 11 employees at the time, looked for support among its neighbors, namely at the Fraunhofer Institute for Silicate Research ISC. "First, we optimized the quality of the light beams, as well as their width and the quality of the color mix for individual colors with a special software ", says Jens Baber, who headed the project at ISC in Würzburg. "It appeared that commercially available lenses would work well together with the software. But this solution would have been too expensive." So the researchers tried to come up with an alternative, and this proved to be a real challenge since the module offered only eight to ten centimeters of space. This meant that the [optical components](#) had to be very small. What is more, the LEDs

that form the basis of the Mobilight module shine their light in every direction. And the red, green, blue, and white colors come from different sources of light. While the researchers do not wish to reveal exactly how they managed to focus the rays of light, they did say this much: they borrowed ideas from laser technology.

Their approach was successful. The new generation Mobilight 3 not only meets technical requirements. With a footprint of 21 by 21 centimeters and a height of 13 centimeters, it is more compact than its predecessor and achieves a significantly higher level of brightness. APE LABS will be unveiling the Mobilight 3 and demonstrating different lighting effects on May 8, 2013, at the opening of ISC's new extension building. This will mark the successful conclusion of the company's first cooperation with Fraunhofer researchers, and the next project with APE LABS has already been initiated.

Provided by Fraunhofer-Gesellschaft

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