



### **Solid-State Lighting**

# Free-form micro-optics for LED downlight with asymmetric uniform light distribution

Pilot Line Use Case by ZUMTOBEL

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## Free-form micro-optics for LED downlight with asymmetric uniform light distribution

Free-form microlens arrays (FMLAs) are more cost-effective, thinner and lighter than reflectors and have demonstrated potential to efficiently produce asymmetric light distributions and uniform illuminance patterns. Zumtobel Lighting GmbH, partner of PHABULOµS, is an internationally leading supplier of integral lighting solutions for professional indoor building lighting applications, targeting the fields of premium lighting solutions including, luminaires, emergency, controls and Digital Services for various building lighting application areas. With over 70 years of profound experience in developing optics for general lighting application ZUMTOBEL is able to specify optical elements which meet ergonomic, human and regulatory requirements. Measurement equipment is in place to measure and evaluate light distributions and luminance distributions.

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