



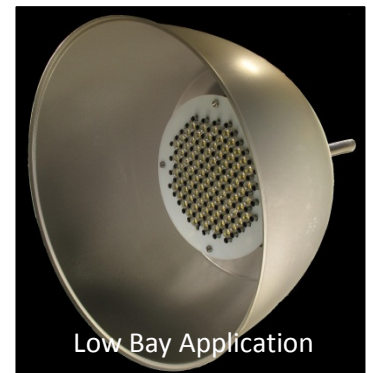
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### **INNOVATIVE LIGHT ENGINES INCORPORATE LEDiL LISA2 OPTICS**

*MarulaLED light engines boast cool-to-the-touch operation, color-temperature tuning and beam control*

SALO, FINLAND, APRIL 10, 2012 – Control is what it’s all about with MarulaLED’s patent-pending CoolTube™ technology. This innovative line of light engines, designed for integration into OEM partners’ luminaires, offers users the ability to control color temperature and beam angle by adjusting the current supplied to specific LEDs. Control of heat, however, is what makes the design truly “cool.” CoolTube™ technology allows the end user to safely position the luminaire to the most useable position, while eliminating bulky heat sinks and metal-clad PCBs. This makes the product ideal for use in restaurants, hotels, workstations, recreational vehicles; in fact, wherever safe contact with the luminaire can be imagined.

Beam control in MarulaLED’s Low Bay Module is optimized by balancing current flow to LEDs mated with LEDiL’s LISA2-M (medium) and LISA2-WW (very wide) secondary optics. MarulaLED’s LE32 module, on the other hand, promotes control of color temperature by the adjustment of power to half of the LEDs. The sixteen inner LEDs used in the LE32 module are a warmer color temperature than the remaining LEDs. This module uses 32 of LEDiL’s LISA2-M medium beam TIR lens.



The LISA2 series of lenses, measuring less than 10mm in diameter and less than 7mm tall, achieves over 90% light transmission efficiency through superior design and superior material. The TIR lens is engineered to exacting tolerances and molded from high-quality acrylic (PMMA), which offers outstanding transmission efficiency and is virtually impervious to UV radiation. Each lens is mounted in a molded polycarbonate (PC) housing designed for alignment to a specific LED, providing precise location of the lens at the ideal focal point for each qualified brand or style of LED. While the lens housing is rated for use at 115°C, the cool operation of the light engine means that the housing, which attaches to the PCB by means of locating pins or optional mounting clips, will undoubtedly maintain its physical integrity over the usable life of the luminaire.



Color-tuning control with high CRI, combined with beam control, patent-pending thermal management and the use of tiny, yet precise, secondary optics means MarulaLED’s products stand “above the crowd”. LEDiL stands “above the crowd,” too, with the broadest selection of standard lenses and reflectors, including a comprehensive line of asymmetric lenses and reflectors. Semi-custom arrays and custom solutions further differentiate LEDiL from the crowd, as does its global sales network, its burgeoning applications engineering department, its partnership with the top LED manufacturers and global distributors and LEDiL’s extensive molding capabilities in Europe and Asia.



Lighting designers are rapidly developing LED-based solutions that take advantage of the significant reduction in power afforded by solid-state technology and the long-life span of LEDs. LEDiL's LISA2 reflectors are another step forward in the evolution of solid-state lighting technology and are available for delivery from multiple authorized partners in LEDiL's worldwide distribution network and samples are provided to qualified accounts that intend to utilize the product in an OEM application. The latest LED qualifications or distributor inventory can be viewed on-line at [www.ledil.com](http://www.ledil.com). For more information, contact Bob Derringer @ [bob.derringer@ledil.com](mailto:bob.derringer@ledil.com), +1.908.216.2377.

#### ABOUT LEDiL Oy

The only true specialist in the field of secondary optics for high-power and lighting-class LEDs, LEDiL has been producing precision-engineered optics and reflectors since 2002 and now boasts nearly 800 standard products optimized for use with LEDs produced by the world's prominent LED manufacturers. The extensive line of products allows LEDiL's customers to accelerate time-to-market and keep pace with the rapid development of high-bright LED technology. Custom solutions are also commonly developed with minimal end-user tooling investment required. With production in Finland and China, sales personnel in Europe, Asia and the Americas, and a global network of authorized distributors, LEDiL's products are market-competitive and readily available.

#### ABOUT MarulaLED

MarulaLED aims to be the technology solution provider of choice for OEM lighting manufacturers wanting to develop next-generation LED lamps and luminaires. MarulaLED's novel, award-winning CoolTube™ technology eliminates the bulky, unsightly heat sinks used in conventional LED thermal management designs, allowing the creation of extremely compact, fit-for-purpose luminaires. Unlike the heat sink approach, CoolTube™ scales well with increased LED cluster size, supporting very high power applications. Manufacturers can either license CoolTube™ technology for use in their own LED lighting designs or purchase CoolTube-based light engines for integration into their luminaire housings. Light engines or modules available from other leading LED product suppliers still require a high level of design input from the OEM manufacturer, including the design and development of the thermal management and optical beam forming techniques to be utilized with the module. In contrast, MarulaLED's light engines provide a comprehensive solution, including driver electronics, optics and thermal management, and only require power to be supplied to work "out of the box". This frees the OEM lighting manufacturer to concentrate on the design of the luminaire, reducing their time-to-market.