

# Brighter lights for safer aircraft



Traditional incandescent (and even fluorescent) lamps waste a lot of energy. Imagine a lamp that emits only the light useful for illumination, without other wasted light (such as ultraviolet light, which you cannot see) and with minimal heat. Such a lamp would be brighter and more efficient. In a miniature version, it would be ideally suited for backlighting flight instruments in aircraft cockpits.

# Technology Strategy Board

Driving Innovation

The NoveLELS consortium of aircraft manufacturers, lighting specialists and university researchers is pioneering energy-efficient, light emitting diode (LED) systems for aircraft applications. This type of solid-state lamp emits light, but very little heat, when an electrical current passes through it.

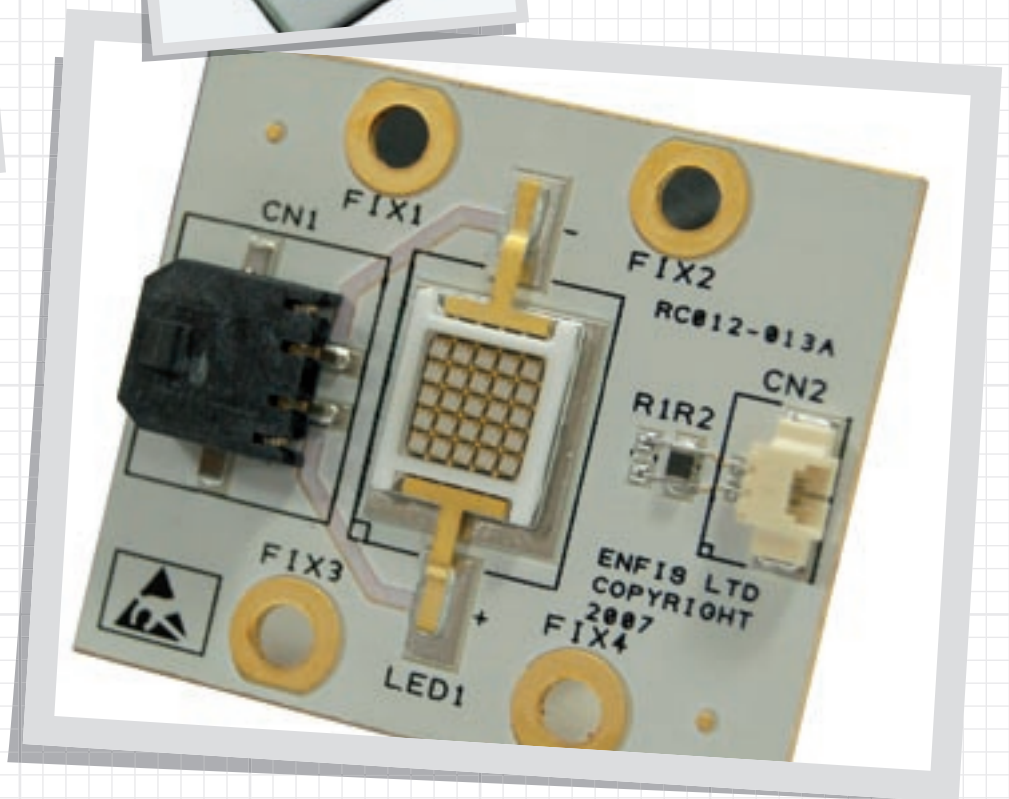
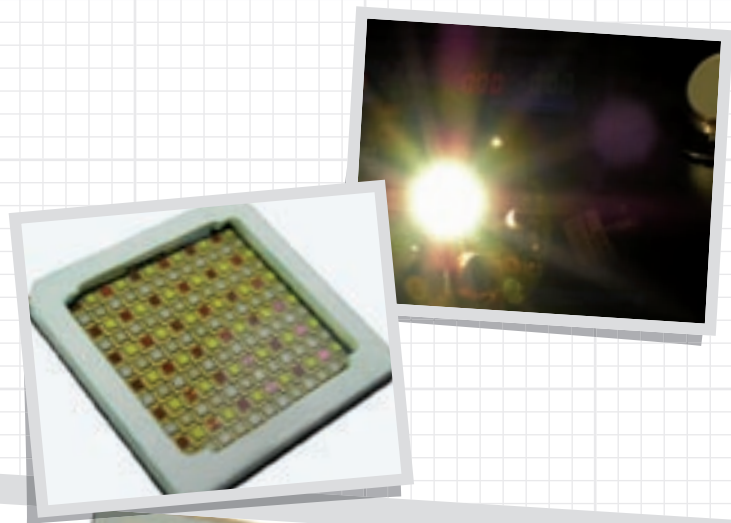


But there are challenges. Most of the LEDs currently found in solid-state lighting are so highly refractive (bend light) that much of the light gets trapped within the device. There is also a phenomenon known as LED droop, which is the tendency for LEDs to work less efficiently at higher currents.

The NoveLELS consortium is introducing gallium nitride LEDs that trap less light. Research into gallium nitride chips is also showing fewer problems with LED droop.

With a year to run in this R&D project, the consortium is demonstrating this technology in cockpit displays and external lighting for aircraft. They will transfer the technology for manufacture in the UK, consolidate the intellectual property and package the new solid-state lighting devices for various applications including TV and computer monitor screens.

These novel LEDs will offer more efficient, high power lights for use in many situations where efficiency and reliability are paramount.



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#### Project number

K2522J

#### Duration

42 months – ends  
September 2010

#### Technology Strategy

#### Board investment

£1.85m

#### Total project cost

£3.35m

#### Project partners

Airbus UK,  
AgustaWestland  
Brunel University  
Enfis  
Exxelis  
IQE  
GE Aviation  
University of Bath

Collaborative research and development projects are one of the tools that the Technology Strategy Board uses to drive innovation in the UK. The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the Department for Business, Innovation and Skills (BIS). T: 01793 442700 [www.innovateuk.org](http://www.innovateuk.org)