Light quality of LED light bulbs

March 2014

WHAT CONSTITUTES QUALITY LIGHT?

LEAPFROG LIGHTING

1 Even light distribution

A high quality LED light bulb is able to evenly distribute the bright, highly concentrated light—with a flux of 200x that of halogen—within a very limited emitting area. The challenge is not only in redistributing the point light, but in ensuring it is uniform in order to create an even light (acceptable light curve).

Bad

Multi-LED lens
= hot spots and uneven light

Good

Single source LED with Intelligent Optics
= even light distribution

LEAPFROG LIGHTING

2 Anti-glare technology

A high quality LED light bulb both maximizes the emitting area of luminaries and uniformly redistributes the ultra bright points of LEDs to remove glare. The challenge is in removing glare without lowering the light bulb's performance in other areas.

3 Gentle roll-off at edges

A high quality LED light bulb produces a gentle roll-off at the edges that fades out gradually instead of stopping suddenly. The challenge is in redistributing the light while minimizing light loss.

Bad

Lens design that produces
a harsh transition

Good

Lens design that produces
a smooth transition

WHY OTHERS FALL SHORT

To produce a high quality LED light, the bulb must be designed in a way that can redistribute the ultra bright points of LEDs.

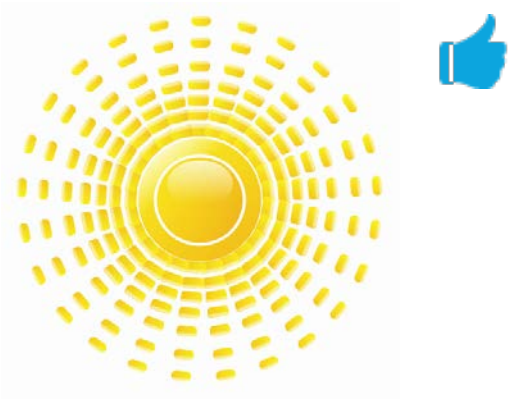
The aim of redistribution is to maximize the emitting area and to provide a uniform brightness. Most manufacturer's don't pay adequate attention to the design of the lens.

Without careful lens design, the product performance drops considerably (loss in lumens, lumen output, energy efficiency).

Leapfrog LED lens with
Intelligent Optics

1 Diffuser

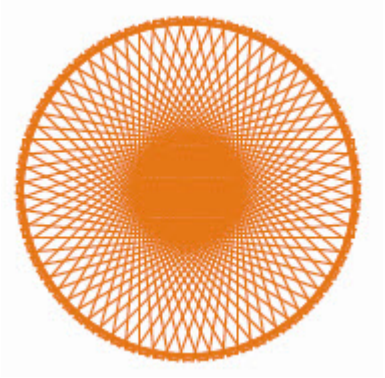
Many manufacturers use diffusers to reduce the intense points in LEDs. However, this results in a lack of control over the spread of light, leading to a less accurate distribution (poor internal reflection) and lower efficiency. It also reduces the amount of light output.



Lens diffuses ultra hot spot of LED
to emit uniform light

2 Reflectors

Direct imaging of light sources can be avoided and luminaire cutoff angle can be controlled with the use of reflector scales and multi-facet features. However, the light intensity is still high because the emitting area of the lens is smaller than a reflector.



Lens reflects light evenly to emit uniform light

THE LEAPFROG LIGHTING DIFFERENCE

Leapfrog Lighting LED light bulbs use *intelligent lens design*, integrating lens redistribution technology and reflectors. This solution distributes the light evenly over 100x the area of the original light source, which enhances the anti-glare effects without reducing the amount of emitted light.

This allows Leapfrog Lighting bulbs to achieve a high efficiency and better light distribution than anything else on the market today.

PAR38
Dimmable High Output Spotlight

PAR30
Dimmable High Output Spotlight

PAR20
Dimmable High Output Spotlight

MR16
High Output Spotlight

THE SOLUTION IS IN THE DESIGN

Leapfrog Lighting bulbs take the light from the very high intensity of the LED source and through a patented, integrated lens-reflector design redistribute that light to a pleasing, soft-edged image reminiscent of well-loved, but inefficient, halogen bulbs.

WHO IS LEAPFROG LIGHTING?

Leapfrog Lighting provides specification-grade LED products for **industrial**, **retail**, and **commercial** applications. We've created an innovative LED lighting solution that uses *Intelligent Optics* to provide architectural quality illumination unrivalled in the industry. Additionally, all our lamps are top performers in virtually all major efficiency-performance categories.

Testimonial

LEAPFROG LIGHTING

"Our clients remark on how beautiful the gallery is now…"

Mr. John Newman, Associate Director
at Kinsman Robinson Galleries in Toronto, ON

ANY QUESTIONS?

Leapfrog Lighting
400 March Road
Ottawa, Ontario, Canada K2K 3H4
T: 1-800-396-9109
www.leapfroglighting.com
info@leapfroglighting.com

http://www.facebook.com/LeapfrogL

http://gplus.to/LeapfrogLighting

http://www.linkedin.com/company/leapfrog-lighting

https://twitter.com/LeapfrogL

Click here to subscribe to our newsletter to receive news and exclusive offers!